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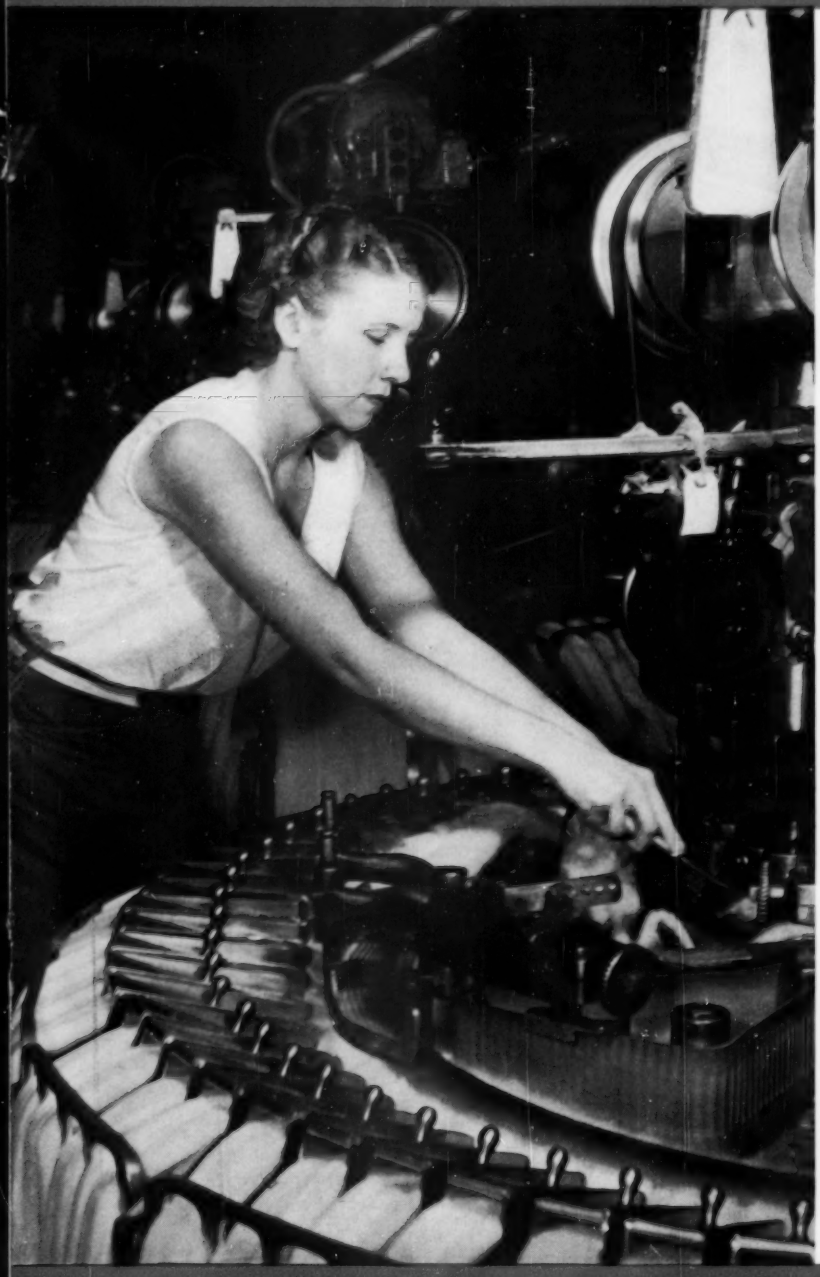
Textile World

MAY, 1956



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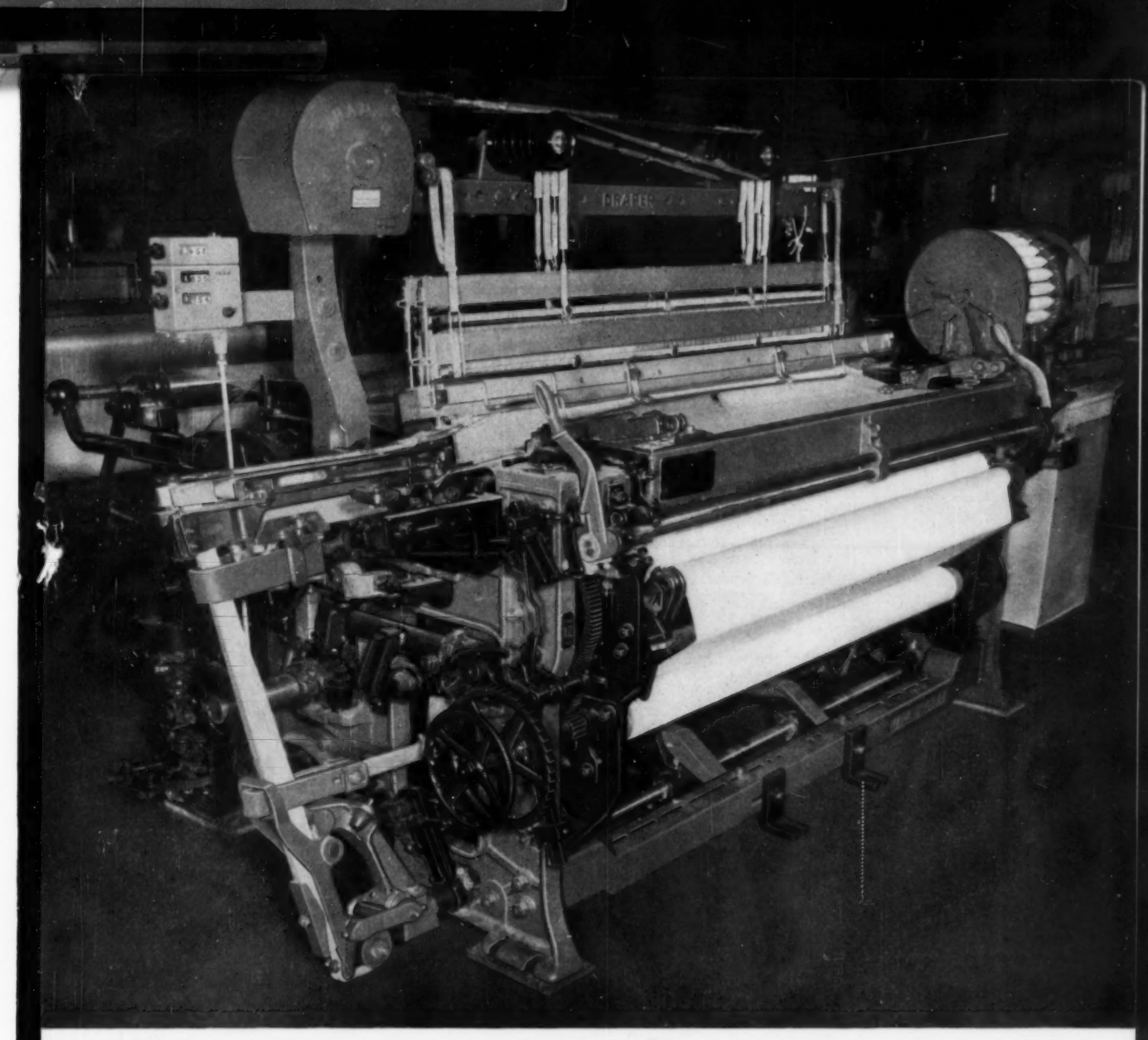

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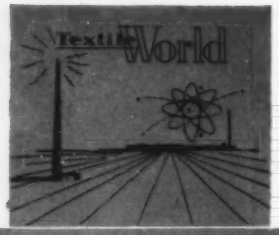

Developments To Watch

ANTISTATIC QUALITIES . . . can be built into synthetic fibers to last the life of the garment. However, consumers would have to be made to understand that radiation from small amounts of radioactive material incorporated in the fiber is harmless. Gamma radiation from isotopes of three to five years half-life will do the trick, but the idea remains in the laboratory stage because of expected public reaction to anything that smacks of A-bombs.

LIMITED IMPORTS . . . of cotton textiles and apparel may just possibly be in the wind, according to reports from Washington. Talks between the Agriculture and State departments concerning a plan for a negotiated agreement between the United States and Japan are reported to be under way, despite earlier denials of such talks by Secretary of Agriculture Benson.

MEN'S SOCKS . . . made from high-bulk yarns may prove to be as hot an item as high-bulk sweaters. Sweater knitting and finishing techniques are now used for socks made of high-bulk Orlon and Acrilan. The result is a soft, cashmere-like hand that appeals to women shoppers —who buy most men's socks.

MULTIPLE-CORE YARN . . . is the newest material for industrial fabrics. Various fibers and filaments are combined to form a yarn with no fiber slippage. All fibers participate in the stress. Made under the Delwin process, these yarns originated in Canada. Werner Textile Consultants is to license U. S. manufacturers.

NYLON TIRE CORD . . . instead of rayon will be used by Firestone in an improved version of its premium-price tubeless passenger-car tires. The company claims that nylon gives the tires greater resistance to the impact of holes and stones than rayon does.

"JAPANESE TEXTILES SOLD HERE" . . . This sign in the future will decorate the front doors of South Carolina stores handling Japanese textiles. A new law, known as the Hart-Arthur Act and aimed at discouraging the importation of Jananese textiles and garments, was recently enacted by the South Carolina legislature. The adopted resolution urged a score of other cotton and textile states to enact similar laws to protect the American people from unfair Japanese competition.

COTTON FABRICS . . . may soon be twice as weather resistant because of new chemical treatments developed by the U. S. Dept. of Agriculture in New Orleans. Cotton fabrics, vat-dyed and partially acetylated, have been found to retain 75% of their strength after being exposed to the dampness and hot suns of New Orleans for 12 months.

SEAMLESS HOSIERY . . . from 400-needle spring-needle machines will be on the market soon. Wildman Mfg. Co. will make the machines.

ORIENTAL DESIGNS . . . in cotton prints may be seen in volume this summer. The prints fall into several types: the true Oriental inspired by old tapestries and art, Persian motifs adapted to modern color and scale, and abstracts that have the delicacy of Japanese water colors. Also reflecting the Oriental mood are batik prints with a Polynesian influence.

DENIM . . . keeps fighting to regain its former market position. The newest move is the use of high-tenacity solution-dyed filament rayon for filling in a vat-dyed cotton warp. It's said to add a luxury look to a more-rugged fabric.

WOVEN FABRICS . . . may again be threatened by paper. This time, the paper is made from wood pulp blended with nylon, Dacron, Orlon, or blends of these fibers. Uses are for tarpaulins, coated fabrics, laundry-press covers, electrical tapes, and felt-like constructions such as filter felts.

MAN-MADE FIBERS . . . with built-in flame resistance will find an expanding market in decorative and transportation fabrics. One manufacturer now has in commercial production a line of natural and solution-dyed filament yarns that are flame resistant. Most early production went into dolls' wigs.

COTTON DIAPERS . . . will be printed with rosebuds, plaids, and other patterns during 1956. While expected to represent only a small share of the market, the trend toward dress-up diapers has been increasing for some time. Printed and colored crib sheets also are on the upswing in popularity.

CONTINUED ON PAGE 6

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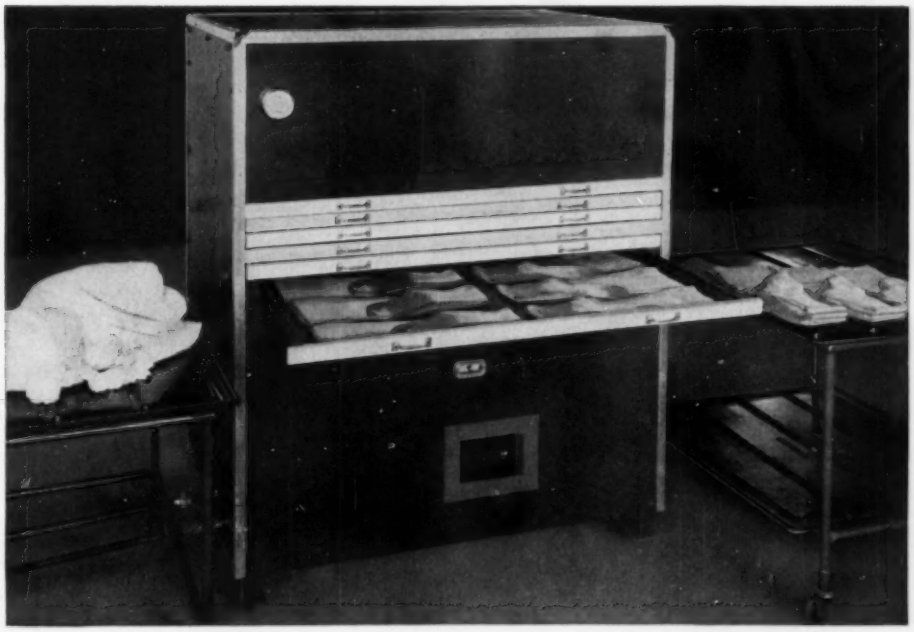
The new Turbo Boardless Dryer. Capacity is 3 dozen pairs per drawer. Cabinet measures 48x36x54 inches.



NOW... Turbo "gentle as a lamb" boardless drying

For years, Turbo Finish Boarding Machines have been famous for their "gentle as a lamb" action.

Now Turbo announces a new Boardless Dryer in the "gentle tradition" for manufacturers who want a substitute for final boarding. The new Turbo Boardless Dryer makes possible the economies inherent in this method of finishing, but with a softer hand and more pleasing finish than ever before possible without use of boarding forms.

Drying is done in a six-drawer cabinet, each drawer being loaded and unloaded in rotation, thereby making the operation a continuous one. This arrangement allows for a comparatively long drying cycle per drawer with no time lost waiting for drying to be completed. Comparatively low drying temperatures protect the delicate fabrics. Heated air is gently circulated through the drawers — no high-pressure air volume. Stockings remain smooth and wrinkle-free, ready for pairing and boxing.

Production up to 500 dozen pairs of stockings is possible in 8 hours. Only 12 square feet of floor space is required . . . steam consumption is unusually low . . . there are no appreciable heat losses . . . unskilled labor can easily operate the unit.

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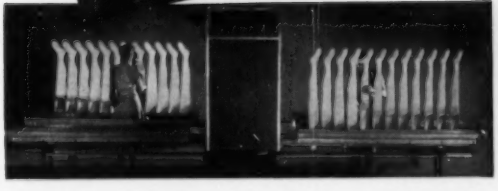

Turbo F-48 Standard Finish Boarder used by leading hosiery manufacturers for high quality finishing. Accommodates 48 forms. All action, timing and temperature controls are automatic. Drying is accomplished in 60 to 90 seconds. Production is 250 dozen pairs in 8 hours, with two operators.

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DEVELOPMENTS TO WATCH

NONWOVEN FABRICS . . . cheaper than cloth, soon will be made in Canada by Courtaulds (Canada) Ltd. The fabrics are already being made by Courtaulds in England. This announcement is the first to say definitely that nonwovens can be sold cheaper because they are produced cheaper. Two other European companies have just announced that they are making bonded fabrics.

FILAMENT-RAYON FABRICS . . . for outerwear will vie with cotton wash-and-wear types as chemical modification in finishing improves. Already, reactant-type resins have been developed that have less effect on wet and dry strengths than earlier resins.

COTTON TENTS . . . treated with THPC-BAP flame retardant that will not ignite even when exposed to the intense heat of burning napalm may soon be available. The fabric chars, but damage is limited to the immediate area of contact. The treatment was developed by the U. S. Dept. of Agriculture in New Orleans.

DIMENSIONAL STABILITY . . . for all fibers by mechanical means alone is promised by a new compressive-shrinking machine. Impact on rayon finishing and wool sponging could be tremendous. The machine takes little space and can be set in range with drying equipment.

KNITTED-FABRIC SHRINKAGE . . . will soon be reduced to as little as 2% after laundering and tumble-drying. Redman Process American Corp. is developing a machine that will process six strands of fabric simultaneously. The machine will shrink striped, colored, and white goods; and the process is entirely mechanical.

ATOM-FIRED BOILERS . . . that will produce economical steam, heat, and hot water for the textile industry may be only a few years away, according to Orr & Sembower, Inc., boiler manufacturers. Because the government is moving ahead with the design of packaged atomic power for planes and ships, the boiler manufacturer expects the atom-powered boiler to come quickly from the drawing board.

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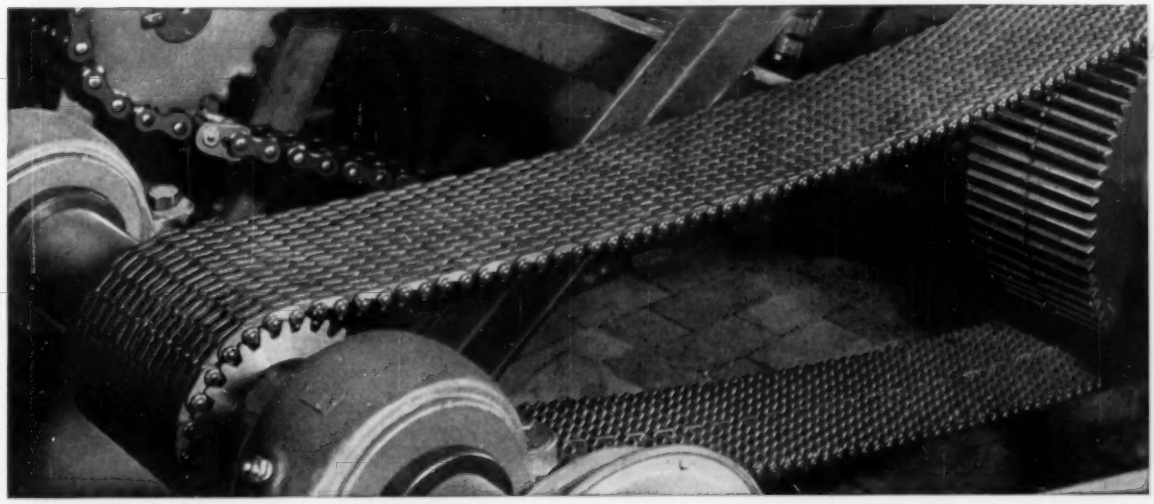
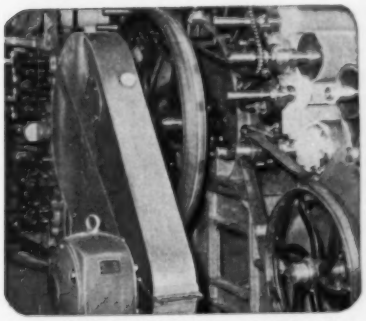
Check your drives against the benefits of

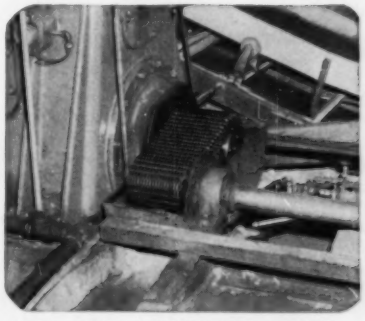
LINK-BELT silent chain



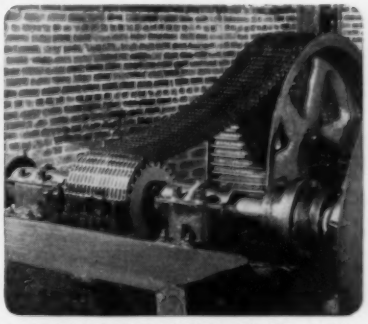
☐ **HIGH SPEED.** Link-Belt silent chain drives are noted for slipless dependability—maintain better than 98% efficiency whether operating over large or small diameter wheels or on long or short centers. For further details on these and more advantages, call your Link-Belt office or authorized distributor.



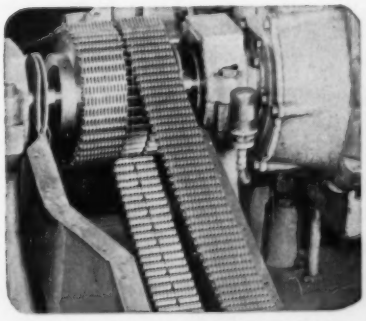
☐ **ADVERSE OPERATING CONDITIONS.** Heat, humidity, cold do not lower Link-Belt silent chain's great efficiency.



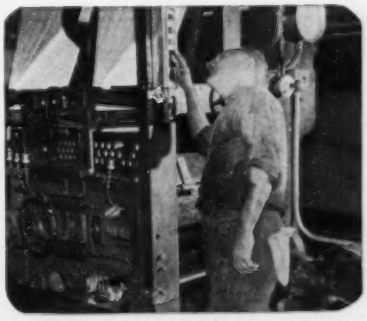
☐ **LARGE OR SMALL HP.** A versatile line, these Link-Belt drives are available from fractional to thousands of hp.



☐ **LARGE RATIOS.** Link-Belt silent chain operates efficiently on extremely short centers at ratios as high as 10-to-1.



☐ **LIMITED SPACE.** Easy to assemble in close quarters, Link-Belt silent chain permits built-in drives, compact housings.



☐ **LONG LIFE.** After 13 years on this newspaper press at speeds up to 4,700 fpm, Link-Belt silent chain is still efficient.

Ask for 88-page Book 2425 — complete data on Link-Belt silent chain drives.

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14,035

SILVERSTREAK SILENT CHAIN DRIVES

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office: New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World.

MODERN DYEHOUSE EQUIPMENT

THE DEPENDABLE KWG SKEIN DYEING MACHINE

KWG Double Reel Skein Dyeing Machine —all stainless steel unit built in capacities to 1000 pounds.

FOR QUALITY DYEING
WITHIN INCREASED BUT MORE NORMAL TEMPERATURE and PRESSURE LIMITS

Perfection in dyeing—for natural and the new synthetic fibers—is yours with KWG Skein Dyeing machines. Rugged construction . . . improved 'Ferris-Wheel' performance . . . give you the penetration and evenness of color—the permanence of tone—for that extra measure of sales appeal—without concern for costly high-temperature, high-pressure methods. Dual-operations possible including scouring, dyeing and shrink-proofing, or scouring, bottom bleaching and dyeing of pastel shades.

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ADAMS AVENUE & LEIPER STREET • PHILADELPHIA 24, PA.

AUTOMOBILE FABRICS . . . of man-made fibers are expected to show up in some European cars during 1957, replacing the conventional leather and wool upholstery long favored by European auto makers. Colorful automobile seat covers, seldom seen in Europe, also will increase in popularity.

BURLAP . . . may soon find a place in women's wardrobes, according to Don Barkin, New York clothing designer. He is now engaged in designing complete wardrobes from burlap. Says he, this "high-fashion fabric" has been used too long to dress potatoes.

CONTINUED ON PAGE 205

Letters From Readers

What's on your mind?

We welcome your comments. Whether you agree or disagree, with us or anybody else, we will be glad to have you air your views.

Unless you ask us not to, we will use your name and company connection when your letter is printed. If you prefer to have your opinion appear unsigned, we will respect your confidence by using only a set of initials.

Write to Editor, Round Table, TEXTILE WORLD, 330 W. 42nd St., New York 36, N. Y.

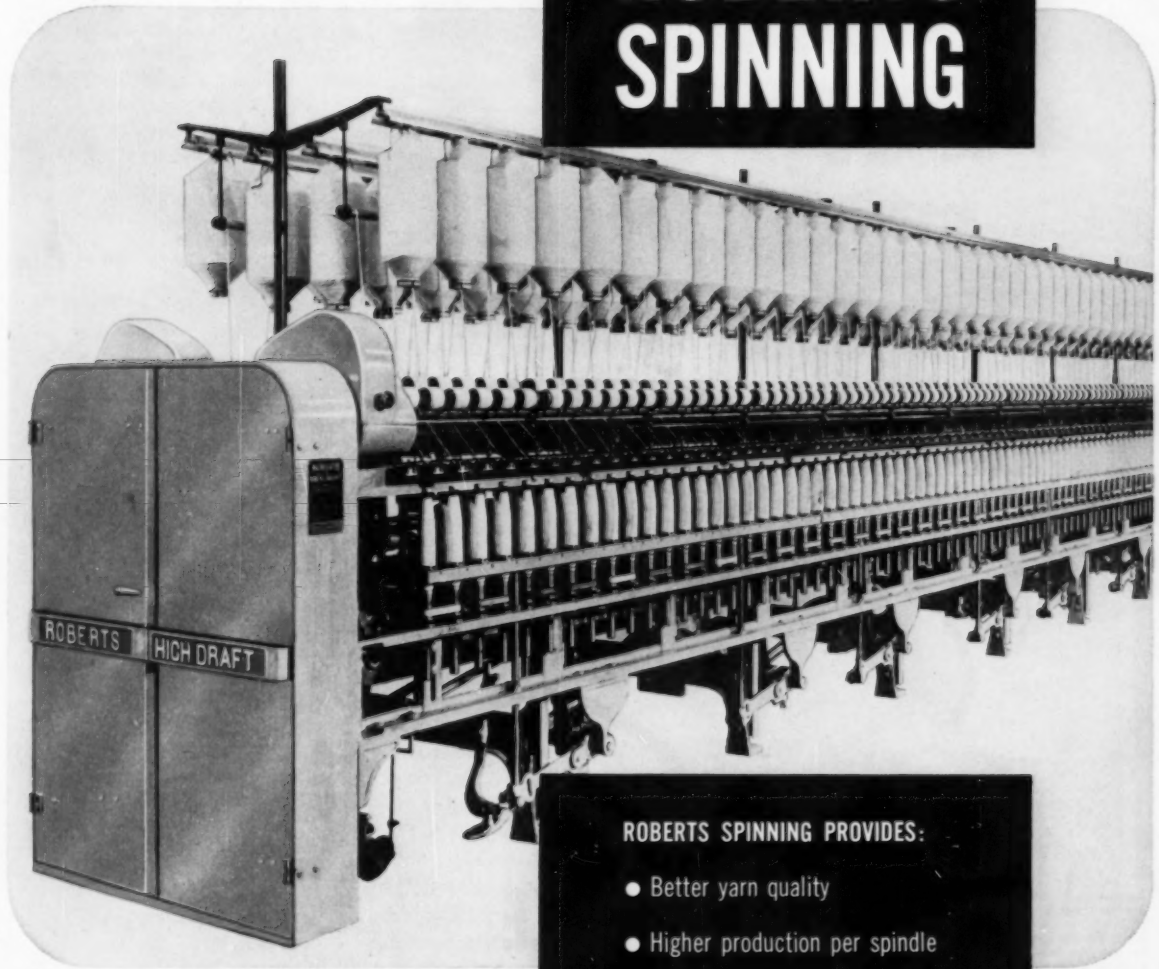
ARE SUPERVISORS PEOPLE?

Dear Editor:

I have very carefully read your editorial "The Hardest Task of All" in the October, 1955, issue of TEXTILE WORLD.

From my many years in the textile industry, during the course of which I have gone through a number of stages

ROBERTS SPINNING



ROBERTS SPINNING PROVIDES:

- Better yarn quality
- Higher production per spindle
- Increased package sizes
- Lower maintenance expense
- Lowest first cost

COMPARE ALL 3

For high production, top yarn quality, and dependability, Roberts Spinning is second to none in America today—and, at the lowest investment per spindle!

2¼ MILLION SPINDLES

In Changeovers and complete Frames—Roberts Spinning has been overwhelmingly accepted by American mills—over 2¼ million spindles now equipped with ROBERTS HIGH DRAFT.

Available in 39 inch, 36 inch and the new Roberts 25 inch width Frames.

All standard features used on Roberts Spinning Frames can be adapted as Changeovers to your existing frames.

ROBERTS COMPANY
SANFORD, NORTH CAROLINA

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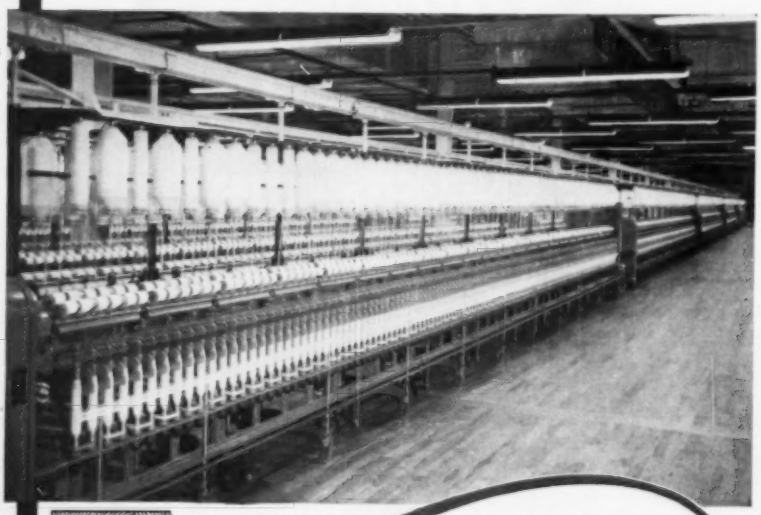
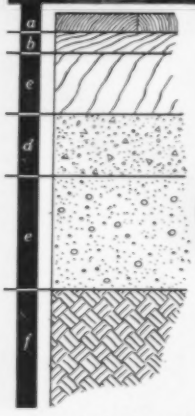
Greenwood Mills' ultra-modern ten-acre, one-story Durst plant





"Wedding the new with the tried-and-true"

NORTHERN HARD MAPLE

Above—(a) Finish floor of 25/32-inch Northern Hard Maple; (b) intermediate floor of 1-inch treated pine; (c) sub-floor of 3-inch treated pine; (d) 3-inch layer of tar concrete; (e) 5-inch to 6-inch layer of crushed stone; (f) earth, compacted.

the finest floor that grows

Planned and designed by Greenwood Mills' own seasoned textile people, for utmost efficiency, the new, six-million-dollar Durst plant at Greenville, S. C., is emphatically, *not* radical, *not* revolutionary. *It's merely superb.* It's an object lesson in logical use of proved machinery, processes and principles, in a structure which experience says is exactly *right*. The vast floor areas of **MFMA** Northern Hard Maple offer a case in point. They're laid *on grade*, of course. They're laid on a proper base and laid properly. They'll endure. They'll support their great loads easily, with minimum vibration. The construction cross-section above deserves study. If you're building, remodeling, reflooring, our technicians at **MFMA** headquarters will be happy to provide all data available to aid you in obtaining "the finest floor that grows." Write—

MAPLE FLOORING MANUFACTURERS ASSOCIATION
Suite 592, Pure Oil Bldg., 35 E. Wacker Drive, Chicago 1, Illinois

FLOOR WITH* NORTHERN HARD MAPLE, *BEECH and BIRCH

of the operating executive staff, I believe that you have pinpointed something that should have been brought out into the open long ago for the good of the whole textile industry—North or South, East or West—in these United States.

You have put management and supervision into three classes: A, B, and C. I would like, particularly, to refer to the people who make up the C category of supervisors, including women who have proved to be excellent foreladies.

These supervisors, it is sad to say, are sometimes (alone of the three classes) called on to carry out the Bible's Golden Rule in the manner you have prescribed.

And sadder still, the men in the A and B categories of the executive staff often treat supervisors in the C class in a way that would cost C supervisors their jobs if they handled their workers in the same fashion.

Your idea of reading more understanding into the Golden Rule is a most excellent suggestion, in my opinion. But it should be applied by all levels of the executive and supervisory staff.

Unless they are super-people, supervisors in Class C can't possibly do their best with their workers if they themselves are handled by their superiors as though Class C supervisors can be had for a dime a dozen.

H. G. C.

Pawtucket, R. I.

[*For still another viewpoint on this subject, see "The Supervisor in the Middle,"* Textile World, *Sept., '55, p. 81.*—Editor]

CORRECTION

Dear Editor:

On p. 93 of the March issue of Textile World, in my article "New Method Measures Hardness of Yarn Twist," you quoted three equations. They are all wrong because you left out the square-root signs.

The correct formulas follow:

Cotton multiplier = turns per inch $\div \sqrt{\text{cotton yarn number}}$

Worsted-system factor = turns per inch $\div \sqrt{\text{worsted yarn number}}$

Run-system factor = turns per inch $\div \sqrt{\text{run of yarn}}$

In order that this new method can be used properly, this correction should be made.

Carl Gordon
Chief Chemist

Albany Felt Co.
Albany, N. Y.

[*We regret the error and any confusion it may have caused.*—Editor]

in a HURRY for the *Best* rubber covered roll ?

Stowe-Woodward Rubber Covered Rolls gather no moss in the making. The three plants where they are made are the world's most modern . . . designed to produce more rolls than any other . . . specifically equipped for the most efficient production of textile finishing rolls.

For a special rush order, any of Stowe-Woodward's three plants is your best source. But with all this equipment, the intervals of TIME specified in the formula for your roll are just as important as the required amounts of rubber, sulphur, or any other ingredient. Short cuts which can possibly affect performance do not make "Rubber Rolls with a Reputation" and we don't believe any of you would risk an ounce of performance to gain a day.

Let's put it this way: Nobody can make a GOOD roll any faster than Stowe-Woodward can make the BEST roll . . . and Stowe-Woodward makes no other kind. Isn't that about the best reason in the world for buying Stowe-Woodward rolls?

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Craftsmen in rubber rolls

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 For more information, write direct or use Reader-Service post card.

"Sludge and rust are things of the past with GULFSPIN on the job,"

*says this prominent southern mill.**

The Technical Assistant to the General Manager of this prominent Southern mill and Gulf Sales Engineer C. T. Timmons watch spindles lubricated with Gulfspin spin clean and free.

"Sludge, rust, and sticking spindles ceased to be a problem when we switched to Gulfspin three years ago," report mill personnel.

Many other leading textile mills have discovered that Gulfspin contributes to smoother operation, rock-bottom maintenance and power costs. Then too they appreciate the fact that spindle bases don't have to be cleaned so often.

Gulfspin works three ways to keep spindles clean and insure smoother spindle operation: First, it's oxidation stabilized to resist sludge formation. Second, it prevents contaminants from depositing in spindle bases, a major cause of spindle vibration. Third, it provides effective protection against rust—reduces bolster wear.

Contact a Gulf Sales Engineer and let him demonstrate Gulfspin's superiority on your frames. You'll find the number of your local Gulf office in the telephone directory.

**Name furnished upon request.*

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As the trees leaf out, fabric-fashions likewise blossom in bright new colors and subtle combinations . . . in a bewildering and *ever-changing* array.

These sudden fashion-changes can mean "sudden death" in many weaverooms . . . but not in those that have the **Maximum Protection** of **M-P** Looms. For these new C & K Looms are the *only* looms that can handle *all* constructions . . . *plain or fancy* . . . and can be converted from one to the other *overnight*.

That's why these all-new **Multi-Purpose** Looms give the **Most Protection** you can get for your weaveroom in today's highly changeable, highly competitive markets. See C & K today.

This "Invisible Trademark" Stands Back of the Trademarks of the World's Finest Fabrics . . . which are **WOVEN FABRICS.**

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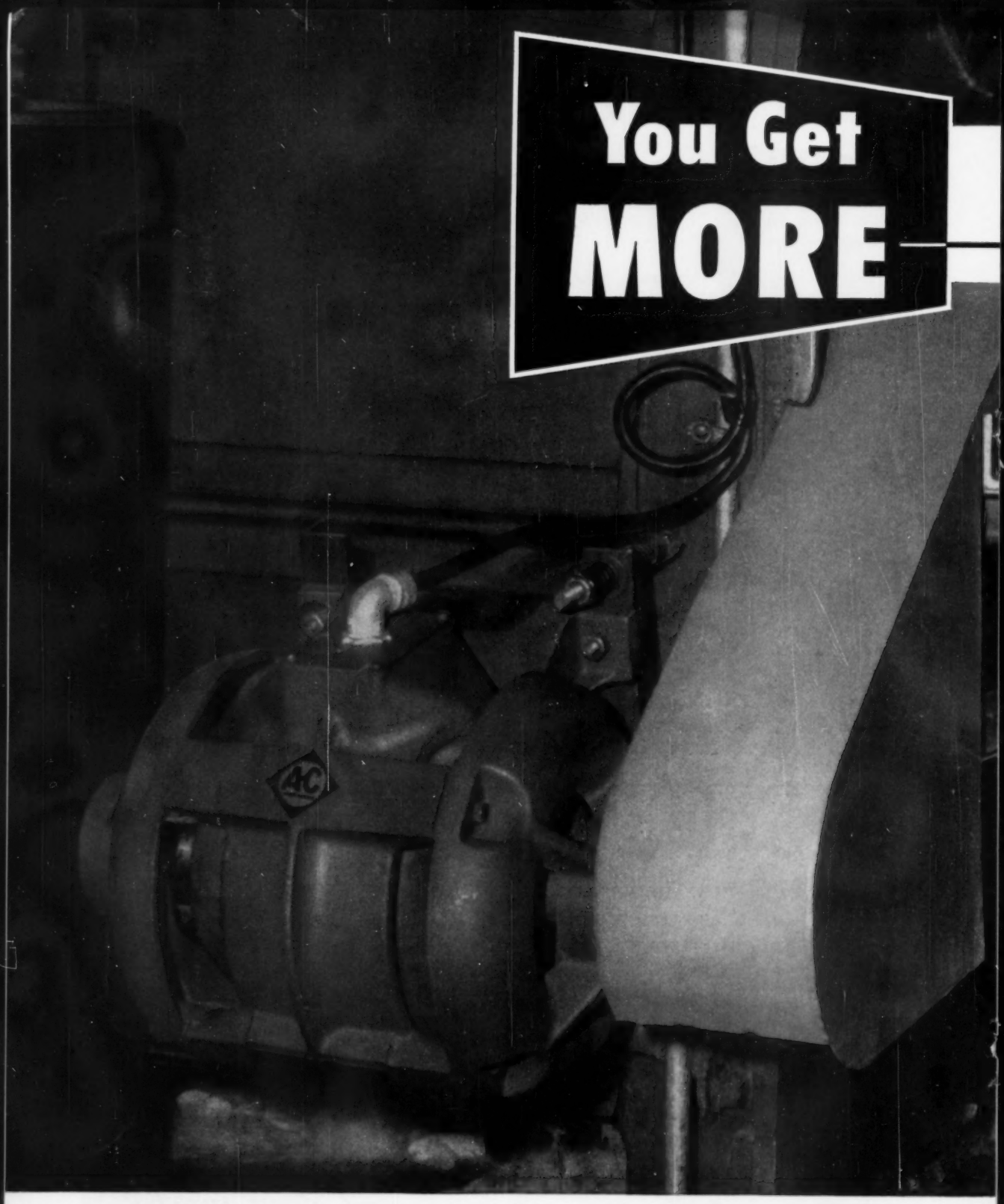
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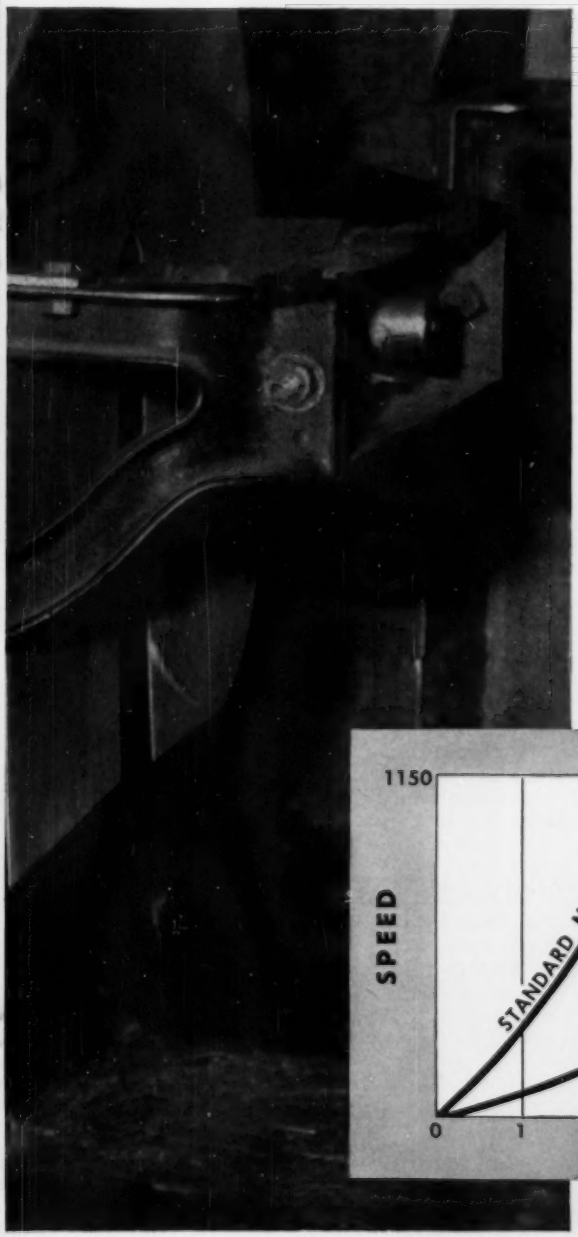


Cuts "Ends Down" and Resulting Stoppages with Allis-Chalmers Textile Drive Equipment

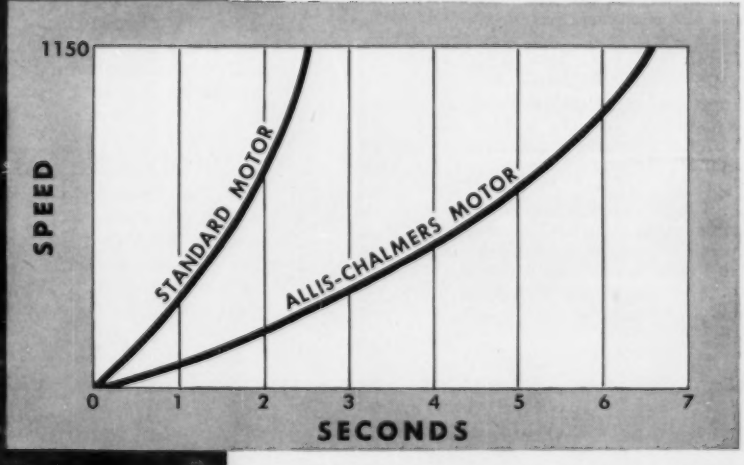
Smooth Starts and even acceleration are both designed into Allis-Chalmers roving frame drives. No special starters or acceleration-reducing clutches are needed to get this performance.

Nearly three times as long — Compared with standard motors, it takes that much longer for Allis-Chalmers motors to accelerate. This means fewer thin spots to cause ends down and production interruptions.

Minimize power loss — Wobble, vibration and play are eliminated when motor speed is transmitted to the frame with *Magic-Grip* sheaves. Designed for "no-slip" performance, they feature a tapered fit on the shaft.

To find out more about the MORE in Allis-Chalmers textile drive equipment, contact your nearby A-C sales office, distributor, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin.

Magic-Grip is an Allis-Chalmers trademark.



CHALMERS

A-C ALLIS-CHALMERS

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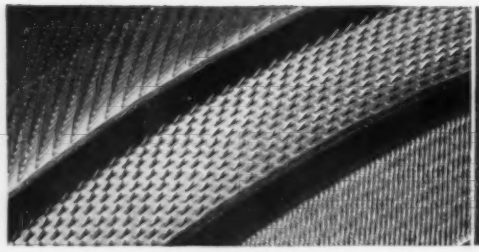

Ashworth Tips ON CARDING

No. 29 in a Series

FLATS AND FLEXIBLE BENDS

The lickerin assembly and the flats with all assemblies directly related to the flats, are the most effective cleaning elements on your cards. The lickerin assembly has been discussed, so we give you the following for consideration in connection with the flats and related mechanisms:

1. Flexible bends control the setting of flats to cylinder. Probably 90% of the cards operating today have worn flexible bends. To double check your own, we suggest you try the following:
   a. Set the flats at each setting point.
   b. Crank flats so that space for setting will be equi-distant between setting points. Recheck setting. You will be surprised at the variation in setting at this point and at the exact setting point.
2. Worn flat ends contribute to poor flat setting, particularly when flexible bends are also worn. We have found that this variation in setting multiplies when bearing surfaces of flat ends are worn more than 3/16" in width. Remilling of flat ends is indicated for quality work, and particularly if flexible bends have already been reground. The reworking of flats and flexible bends go hand in hand.
3. Flat chains convey the flats in their carding operation and should always be kept under correct tension. Some mills make the mistake of running their chains with excessive tension, resulting in undue wear on the flat driving mechanism and the cocking of flats on flexible bend between the backstand and the second stand from the back. This area does the heaviest carding, so it is important that the flats seat firmly on the flexible bend if you are to get quality work.

Worn chains permit flats to rub on front and back plates, damaging the flat clothing, and are responsible for an excessive amount of flat top waste due to the increase between center distances of flats.

4. Flat driving sprockets and shafts must be in good repair at all times. Worn sprocket shafts cause excessive strain on the driving mechanism, and in some cases it is impossible to keep the flats parallel across the face of the cylinder. The teeth in the flat driving sprocket should be carefully lined up. Should one sprocket be installed on the shaft so that a tooth on one side of the card is slightly ahead of the same tooth on the opposite side of the card, the flats will not run parallel, and in most cases will hang up, resulting in broken flats, damaged flat clothing and damaged cylinder clothing.
5. Flat carrier pulleys should turn freely to facilitate flat operation. Oil regularly and clean regularly.
6. The spiral flat cleaning brush should be set accurately end to end giving consideration to length of flat clothing and length of bristles.

Setting bristles too deep will pack waste at foundation of flat wire instead of brushing it out.

7. Be sure large and small rotary brushes turn freely and have good bristles. Also, inspect and keep in adjustment the flat end brushes.

While the quality of your carding starts at the back of your card, you cannot control it or improve upon it unless your flat assemblies are in proper working order.

Incidentally, we specialize in flat end milling and regrinding flexible bends at our Greenville, Atlanta, Charlotte, and Fall River, Mass., shops.

ASHWORTH BROS., INC.

American Card Clothing Co. (Woolen Division)

Fall River*†‡ Worcester‡ Philadelphia*†‡ Atlanta†‡
Greenville*†‡ Charlotte†‡ Dallas†‡ (Textile Supply Co.)
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3 Factories • 6 Repair Shops • 7 Distributing Points

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Clothing for Cotton, Wool, Worsted, Silk, Synthetic Fibre and Asbestos cards and for All Types of Napping Machinery. Brusher Clothing and Card Clothing for Special Purposes. Lickerin Wire and Garnet Wire. Sole Distributors for Platt's Metallic Wire. Lickerins and Topflats Reclothed.

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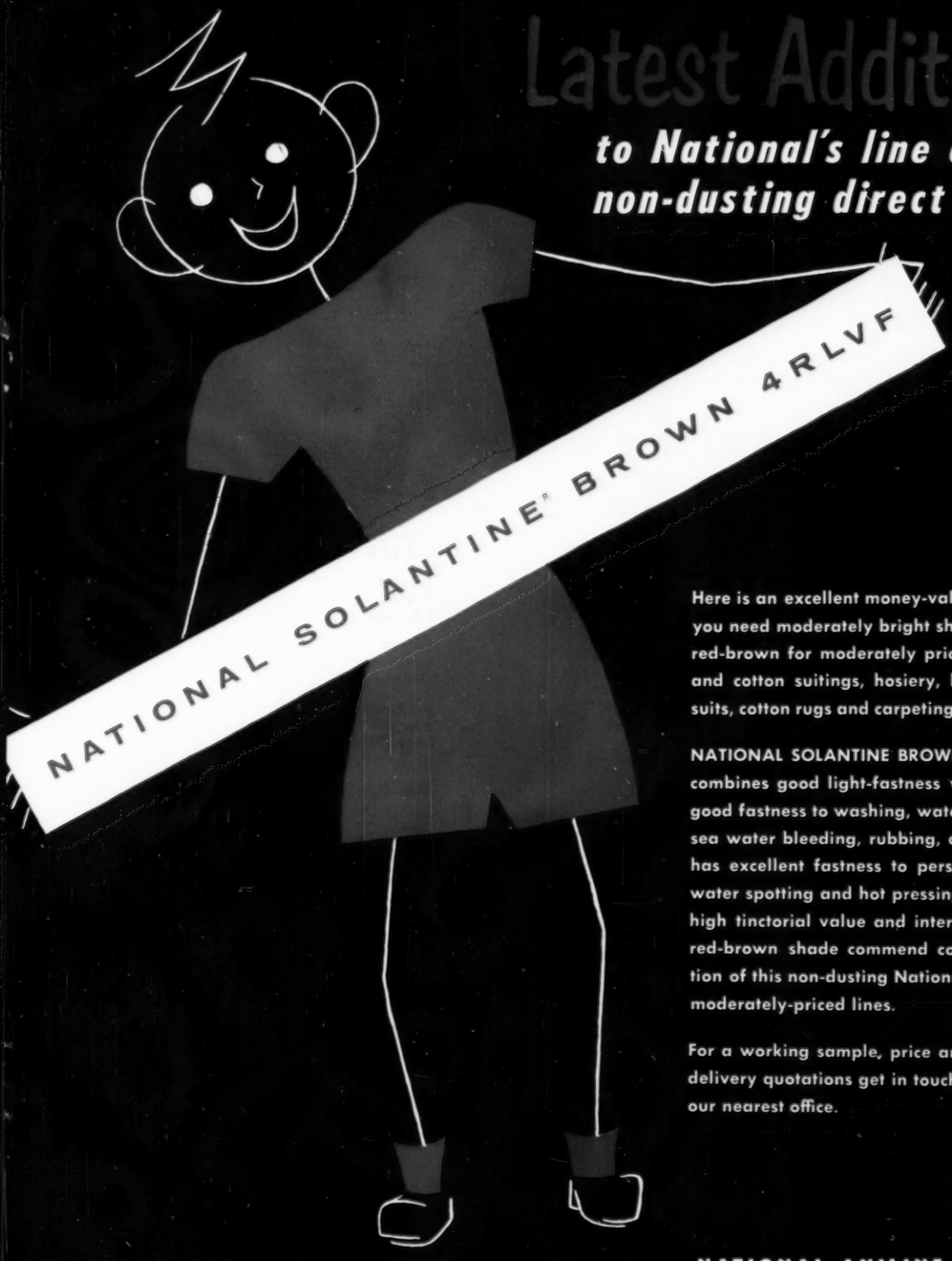
3 FACTORIES • • • 6 REPAIR SHOPS • • • 7 DISTRIBUTING POINTS

Latest Addition

to National's line of non-dusting direct dyes



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NATIONAL SOLANTINE BROWN 4RLVF combines good light-fastness with very good fastness to washing, water and sea water bleeding, rubbing, acids. It has excellent fastness to perspiration, water spotting and hot pressing. Its high tinctorial value and interesting red-brown shade commend consideration of this non-dusting National Dye for moderately-priced lines.

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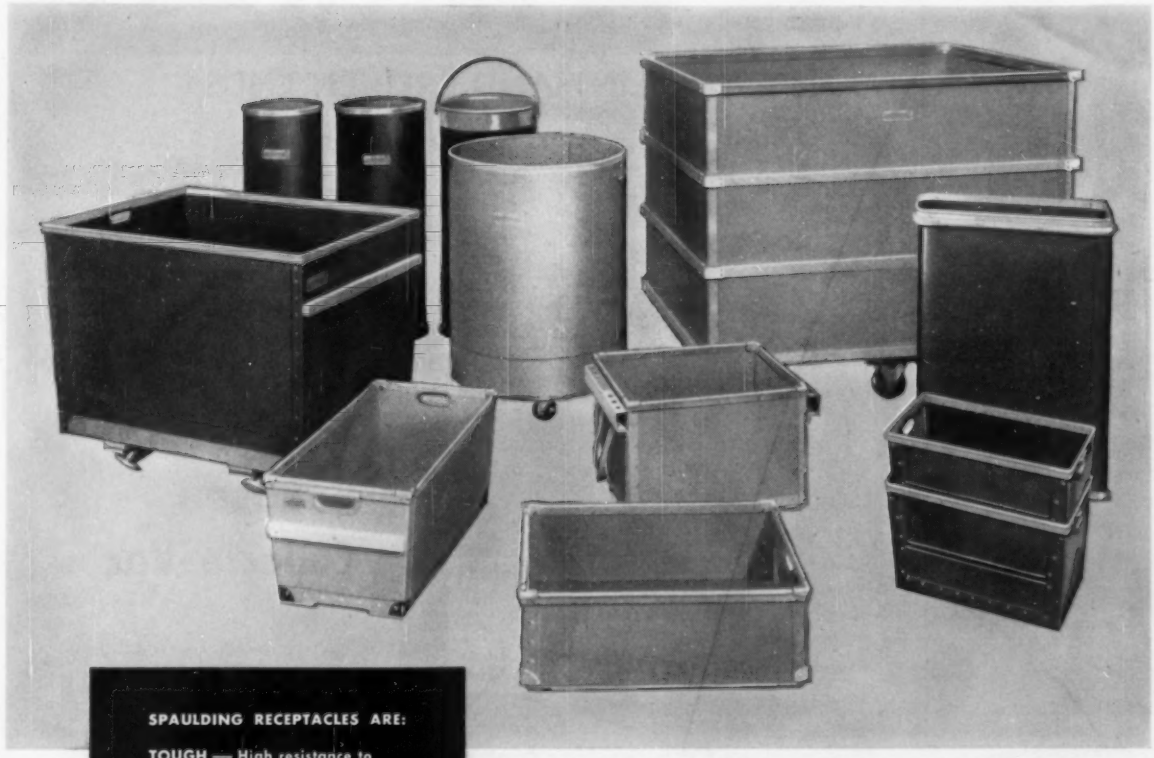

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TOUGH — High resistance to impact and abrasion.

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RESISTANT to oils and greases. No rust. No corrosion.

Spaulding Vulcanized Fibre mill trucks, boxes, barrels, baskets and cans reduce replacement needs and improve textile materials handling efficiency. These receptacles are available in a variety of standard designs and sizes. Or, we will make receptacles to your particular specifications. Contact the nearest Spaulding Branch Office for complete data on Spaulding products for the Textile Industry.

SPAULDING also makes these items for the Textile Industry: *Bobbins, Headless Package Tubes, Take-Up Tubes, Sizing Tubes, Lap Rolls, Pirn Caps* and *Redraw Caps.*

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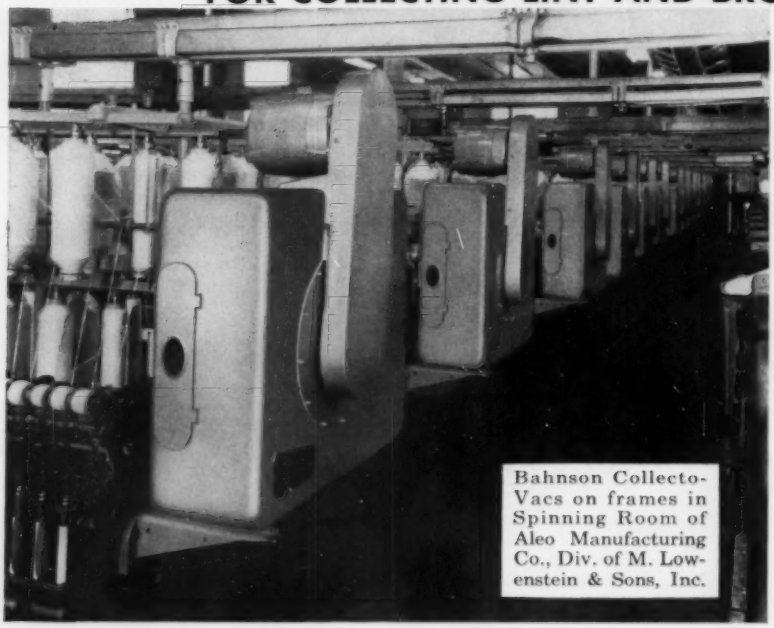

Bahnson Collecto-Vacs on frames in Spinning Room of Aleo Manufacturing Co., Div. of M. Lowenstein & Sons, Inc.

Top textile firms find greater performance advantages with the efficient Bahnson Collecto-Vac

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Bahnson Collecto-Vac

Mill-proved Collecto-Vac features offer you more for your investment as standard equipment

IN MATERIALS: Attractive anodized aluminum flutes — *no warpage or cracking.* Rugged 14 gauge stamped steel collection box.

IN DESIGN: More uniform suction pressure. Scroll type fan discharge to *disperse* motor alley heat, not *concentrate* it.

Belt driven fan for flexibility, or internal motor for economy.
(A scroll type fan is used with both designs.)

IN PERFORMANCE: Greater cleanliness and collection of flying lint. Positive end collection the length of the frame. Lower horsepower at same CFM and suction pressure.

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Write us today for our free booklet containing detailed information on the new Bahnson Collecto-Vac.

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Of the nation's 100 top textile manufacturing firms, 91 are users of Bahnson equipment!

Soromine CS

WHITE

Available at last is a white cationic softener that doesn't yellow bleached white or pale, bright shade dyed textiles. Moreover, it gives that full, lofty softness that's always in demand.

Soromine CS is easy to apply — in the last rinse water in the dye beck, hosiery machine, jig or print washer; in the starch mangle, pad or quetsch. Soromine CS is versatile — it can be applied to natural or synthetic fiber textiles, either alone or in resin finishes.

For that special softening effect on cotton knitted goods, prints, woolen flannels, viscose and acetate piece goods, mixed fiber hosiery, investigate Soromine CS.

Ask us about the use of Soromine CS in your textile finishing operation.

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• For the first time—Jet-Power Denim—a tough, durable denim as handsome as it is rugged. Jet-Power Denim is woven of high tenacity solution-dyed rayon yarn on a vat-dyed cotton warp—a combination of natural fiber with man made fiber, wedding the outstanding qualities of each into a new fabric, the first all new denim in over 100 years.

• Jet-Power Denim is just one of the many realized potentials for JETSPUN yarns—the yarns that offer all kinds of advantages to many applications... fabrics for fashion, home furnishings, automobile seat covers, and now this exciting new Jet-Power Denim.

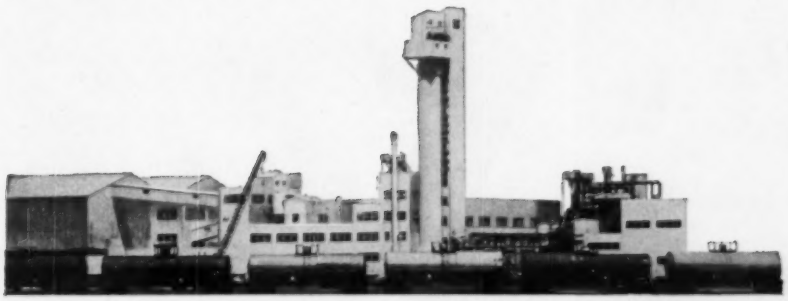
• Why not explore these potentials? Enka's creative and cooperative research specialists are always ready to work with you—to develop your ideas—to help you discover another new "first" with JETSPUN. This may be the answer you've been looking for... why not drop us a line?

AMERICAN enka CORPORATION

206 Madison Avenue, New York 16, N. Y.
Sales Offices: 871 McCallie Avenue, Chattanooga, Tennessee
428 Jefferson Standard Building, Greensboro, N. C.
2001 Industrial Bank Building, Providence, R. I.

For more information, write direct or use Reader-Service post card.

your Two best sources for UREA



Allied

...and

Allied

Allied's Nitrogen Division has 2 urea plants – one at South Point, Ohio and one at Omaha, Nebraska. When considering your source of UREA supply, Allied tops the list with its multi-plant production. Quality? Very high. Delivery? Fast – no matter where you are, thanks to widely separated producing locations. Carlots and trucklots from the plants. LCL from warehouse stocks in Passaic, N. J.; Chicago, Ill.; Providence, R. I.; East St. Louis, Ill.; and Charlotte, N. C. All shipments in easy-to-use, 100 lb. moistureproof multiwall paper bags.

Dept. UI-30-2

Allied Chemical — NITROGEN DIVISION

40 Rector Street, New York 6, N. Y.

Ethanolamines • Ethylene Oxide • Ethylene Glycols • Urea • Formaldehyde • U. F. Concentrate—85 • Anhydrous Ammonia • Ammonia Liquor • Ammonium Sulfate • Sodium Nitrate • Methanol • Nitrogen Tetroxide • Nitrogen Solutions • Fertilizers & Feed Supplements

NEW TWISTS in stretch yarn processing

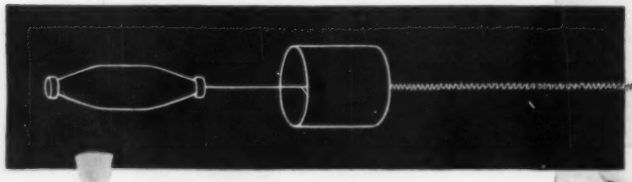
Universal's complete service covers every factor from pirn to finished product

Universal is the recognized headquarters for machines especially developed to handle all the popular new bulk and stretch yarns. Besides the women's wear shown here, countless garments for both sexes and all ages are made of new "magic" yarns processed on fast, economical Leesona Machines.

To aid you in producing yarns with highest sales potentials, the Universal Yarn Evaluation Department has been established. Its purposes are: to set up standards for processing and testing stretch yarns; to provide mills with samples; to suggest test procedures and appraise samples from mills; and to check new market possibilities.

And in addition, Universal offers its famous Leesona Pay-As-You-Profit Plans — for long-term purchase or lease of new machines without weakening your financial position.

Investigate these valuable aids to successful stretch production — and profits. See your Universal representative or write direct.



23.5.28

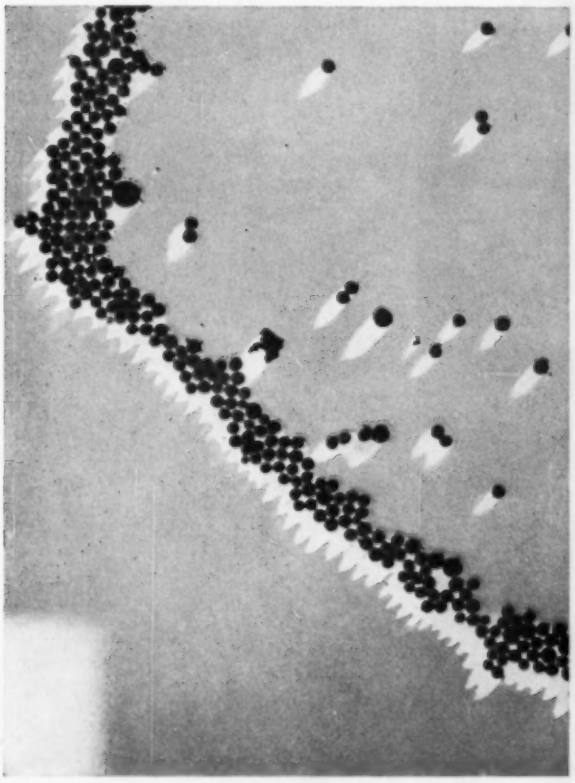
LEESONA

UNIVERSAL WINDING COMPANY

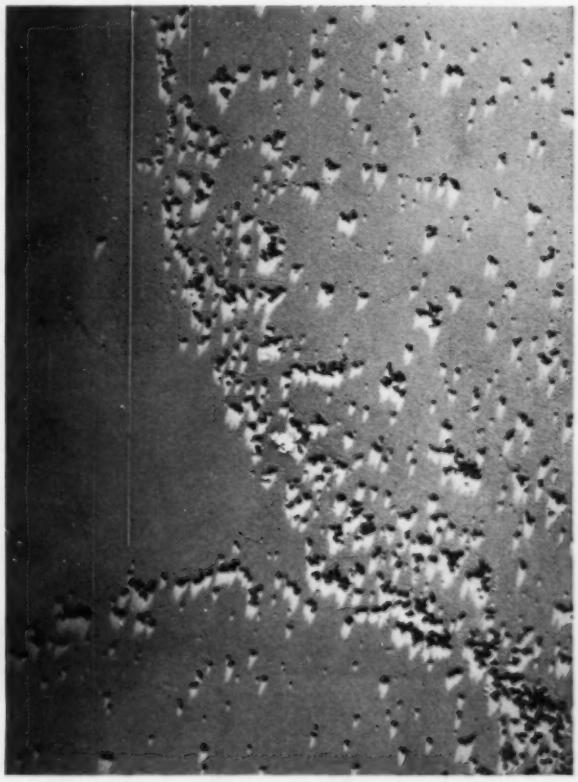
P. O. BOX 1605, PROVIDENCE 1, R. I.

Sales Offices:
Boston • Philadelphia • Utica • Charlotte • Atlanta • Los Angeles
Winding and Twisting Machinery for Natural and Synthetic Yarns

Electron Photomicrograph (10,000x) of normal nitrile rubber latex particles shows them to be approximately 0.25 micron (2500Å) in diameter.



Similar Photomicrograph of particles of new CHEMIGUM LATEX shows them to be only 0.05 micron (500Å) in diameter—about 1/5 of normal.



The Latex that works 25 times as hard

CHEMIGUM LATEX is extensively used in coatings, finishes, sizes, impregnants, saturants, inks, dyes and adhesives for papers, textiles and leathers. Permanence, washability, flexibility, strength, adhesion and resistance to oils, solvents, chemicals and abrasion are some of the properties it imparts.

In virtually all its applications, the principal reason for using CHEMIGUM LATEX is its binding action. To improve this action, Goodyear chemists decided to increase the area of contact between the latex particles and the surface involved by decreasing the size of the particles.

Pictured above is the result of their efforts. The five times smaller particles of new CHEMIGUM LATEX means a 25 *times* greater area of contact—a 25 times harder-working latex. What's more, this new latex exhibits excellent mechanical stability and a carefully balanced acid-salt ion tolerance for easier processing.

Full details on new, small-particle size CHEMIGUM LATEX are contained in the latest *Tech Book Bulletin*. It's yours by writing to: Goodyear, Chemical Division, Dept. Q-9433, Akron 16, Ohio.

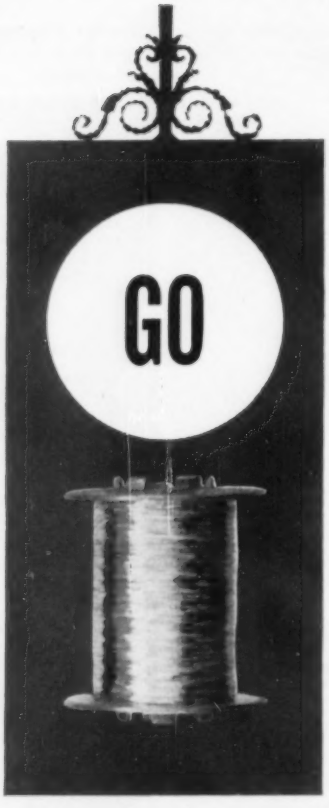
CHEMICAL
GOODYEAR
DIVISION

COATINGS
DEPARTMENT

Chemigum, Plioflex, Pliolite, Plio-Tuf, Pliovic—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

CHEMIGUM • PLIOFLEX • PLIOLITE • PLIO-TUF • PLIOVIC • WING-CHEMICALS

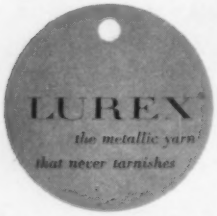
High Polymer Resins, Rubbers, Latices and Related Chemicals for the Process Industries



LUREX

The signal for new developments

Lurex® is the name that's known; the name to watch . . . Lurex is the name for creative new developments, new end uses, new profit potentials. It is the creative metallic yarn with an unmatched record for smooth-running performance . . . constantly stimulating store interest with promotional color news. Keep your eyes on Lurex and on the tag that tells you it's Lurex,



the non-tarnishing metallic yarn made only by

The Dobeckmun Company,
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...when the mood is Blue

AHCOVAT BLUE BCF

Out of our new Multi-Products Building at Dighton, Massachusetts comes an improved Ahcovat Blue BCF Double Paste.

A handsome self-shade; an excellent base color for bright blues.

Extremely small particle size for bright, clean, level package dyeings. Request a sample for testing in your laboratory.

AHCO DYES

ARNOLD, HOFFMAN

ARNOLD HOFFMAN & CO., INC. • EST 1815
OFFICES & TECHNICAL SERVICE LABORATORIES
PROVIDENCE, ATLANTA, CHARLOTTE, TETERBORO
ASSOCIATED WITH IMPERIAL CHEMICAL
INDUSTRIES LIMITED • LONDON ENGLAND

For more information, write direct or use Reader-Service post card.

Another new development using

B. F. Goodrich Chemical *raw materials*

Vinyl-coated nylon tent fabricated by Hoosier Tarpaulin Co. of Indianapolis. B. F. Goodrich Chemical Co. supplies only the Geon polyvinyl materials.

Geon plays lead in new tent theater

HERE in Tucson, Arizona is the first winter tent theater, forerunner of all-season entertainment for the theater-in-the-round. Its success is due to a newly developed Geon-coated nylon fabric with many advantages over canvas materials.

Colors are vivid, brilliant and the gay carnival effect is permanent. The Geon coating stands up to sunlight, resists the abrasive effects of sand, remains pliable and water-tight. The fabric is light in weight for easy handling, yet has the strength for long service.

Similar rugged fabrics coated with Geon are also in use as durable, lightweight tarpaulins for trucks and by the U. S. Army for ponchos and arctic tents—several of the hundreds of applications for Geon polyvinyl materials. Geon is found in foam, rigid vinyl pipe, insulation for wire and rigid sheeting—to touch on but a few of Geon's many sales successes.

For information on the remarkable qualities of Geon as a help to your business, write Dpt. DV-3, B.F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

GEON RESINS • GOOD-RITE PLASTICIZERS . . . the ideal team to make products easier, better and more saleable.

GEON polyvinyl materials • HYCAR American rubber and latex • GOOD-RITE chemicals and plasticizers • HARMON colors

PIN DRAFTER® SYSTEM boosts production

on better quality tufted carpet yarns

CHATHAM MANUFACTURING COMPANY, Elkin, North Carolina, installed Warner & Swasey Pin Drafters to process worsted yarns. They soon found that their Pin Drafters' extreme versatility *also* permitted improved processing of superior tufted carpet yarns.

Now, working 3 full shifts, 6 days a week, they produce up to 40,000 lbs. a week—over 2,000,000 lbs. per year for the past two years!

Besides this high production, the Pin Drafter system has provided Chatham these additional advantages:

- **Pin Drafters handle longer staple lengths, permitting lowering twists and bulkier yarns—better cover.**
- **Better parallelization of fibers.**
- **Improved blending of all fibers. (They have had good results on hard-to-blend Heather Flannel—3% black with 97% white.)**
- **A wider range of sliver weights can be produced, without changing trumpets.**
- **Pin Drafters require less floor space for same poundage.**

One official stated, "For versatility and quality, regardless of denier, the type fiber, or fiber length, Pin Drafters provide the most satisfactory operation."

This story again shows the versatility of the Pin Drafter system and its adaptability to *many different* mill applications. For facts on how Pin Drafters can cut costs, speed production, and improve quality in your mill, call in your Warner & Swasey Field Representative.

® Reg. U. S. Pat. Off.

WARNER & SWASEY

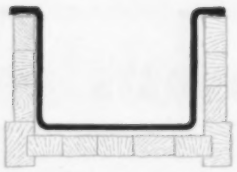
TEXTILE MACHINERY DIVISION

SALES OFFICES

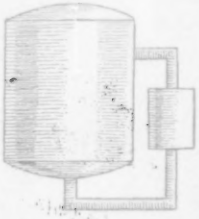
Main Office and Factory: 5701 Carnegie Avenue, Cleveland 3, Ohio
61 Rivulet Street, North Uxbridge, Mass. • 6910 Market Street, Philadelphia, Pa.
121 11th Street, N. E., Atlanta 3, Ga. • 1820 Browning Avenue, Charlotte 5, N. C.

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS...WITH A WARNER & SWASEY

1929



Stainless steel was first used by textile mills as linings for dye vats. It reduced maintenance and boiling-out time so much that . . .

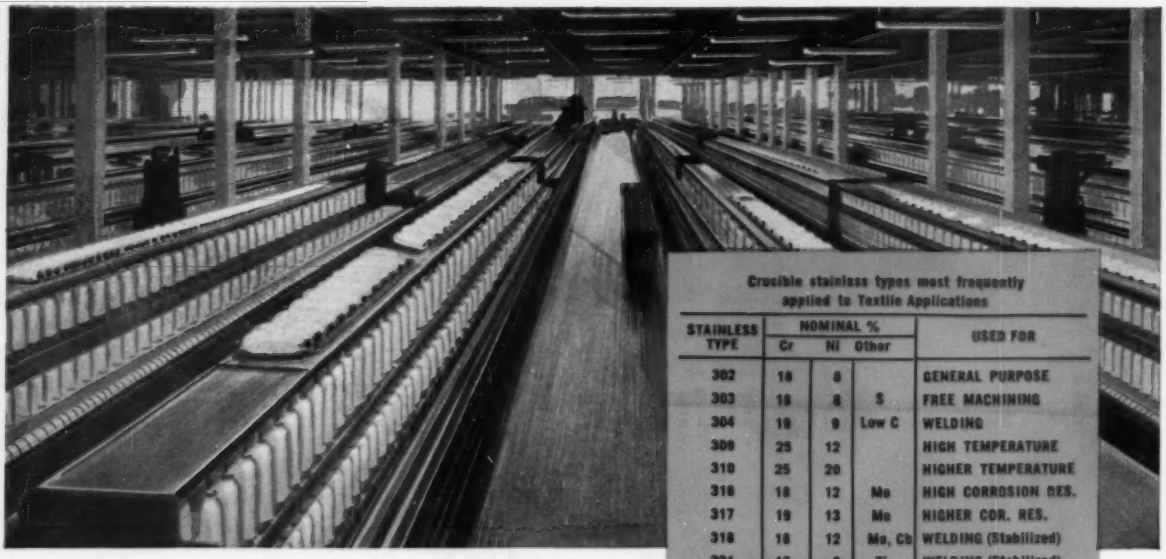


. . . by the middle thirties, it was used in all kinds of related equipment. And in kiers and other equipment, where strength and cleaning ease were as important as corrosion resistance, stainless found wide use. And now . . .

1935

1956

. . . stainless steel cuts costs in everything from dye house to loom — in finishing, fabric preparation, weaving, knitting, yarn preparation and manufacture.



Crucible stainless types most frequently applied to Textile Applications

STAINLESS TYPE	NOMINAL % Cr	Ni	Other	USED FOR
302	18	8		GENERAL PURPOSE
303	18	8	S	FREE MACHINING
304	19	9	Low C	WELDING
309	25	12		HIGH TEMPERATURE
310	25	20		HIGHER TEMPERATURE
316	18	12	Mo	HIGH CORROSION RES.
317	19	13	Mo	HIGHER COR. RES.
318	18	12	Mo, Cb	WELDING (Stabilized)
321	18	8	Ti	WELDING (Stabilized)
347	18	8	Cb	WELDING (Stabilized)

for tomorrow, too, see why no material can cut your costs like stainless steel

Stainless steel offsets *brutally-hard usage* with exceptional toughness and strength . . . combats *biting dyes and acids* with remarkable cleanability and corrosion resistance . . . prevents *metallic pickup* through its chemical inertness in the dye vat — here again with corrosion resistance. That's why stainless steel is no luxury metal, but *the least expensive material you can buy.*

Whether you're redesigning an old process, or setting up a new one, your Crucible representative can show you how to use stainless to best advantage. In either case, you'll want to see the over-all picture first, so write for your complimentary copy of the 32-page, illustrated booklet, "Making the Most of Stainless Steel in the Textile Industry." *Crucible Steel Company of America, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

For more information, write direct or use Reader-Service post card.

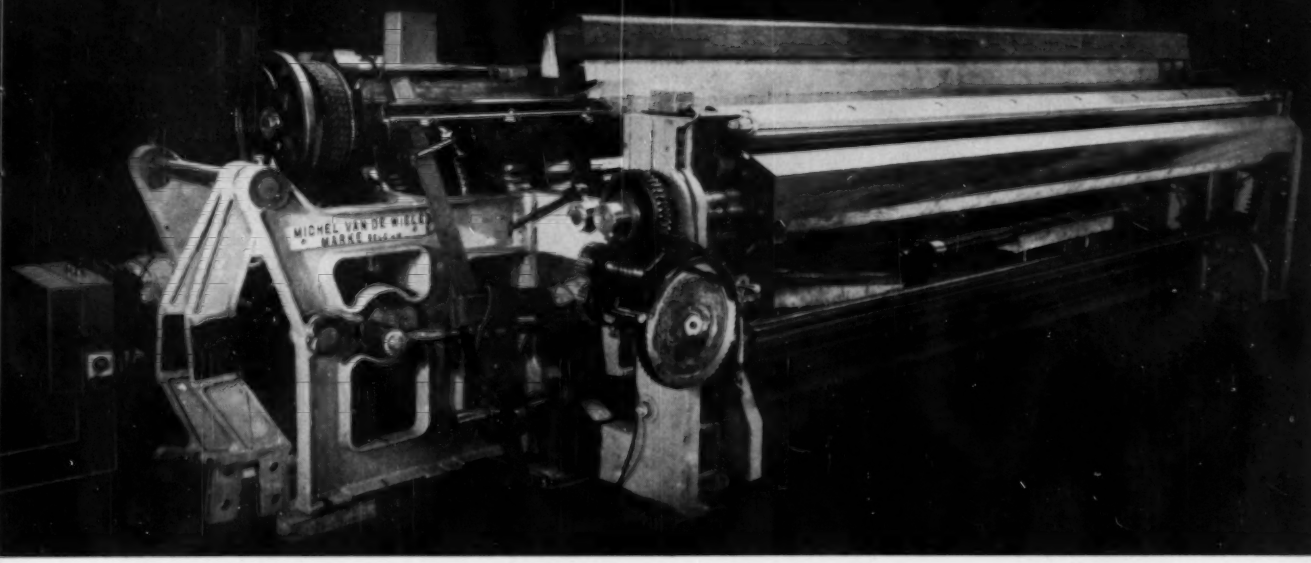
Important announcement:

FAMOUS VAN DE WIELE LOOMS NOW SOLD, INSTALLED AND SERVICED BY A·S·R

It is with great pleasure that American Safety Razor Corp. and the Van de Wiele Co. of Marke, Belgium, announce the availability of Van de Wiele Looms in the United States and Canada.

The Van de Wiele Company is the largest manufacturer of carpet, tapestry and jute looms in Europe. Moreover, Van de Wiele operates their own large mill, so any loom improvements they develop are thoroughly tested and "production-proved" before being offered to buyers.

A.S.R. distributes, installs and services these looms. A complete inventory of spare parts is stocked in the U.S. to insure immediate shipment. Engineers and mechanics from A.S.R. have been thoroughly trained in all phases of the looms' operation and maintenance.



New Van de Wiele Jute Broadloom weaves more backing per hour

This loom, developed exclusively to make tufted carpet backing, has no superstructure or overhead shedding . . . is exceptionally sturdy and compact

Pictured above is the new loom which Van de Wiele designed specifically to weave jute backing for tufted carpets—a special type of loom for a new industry! Like all looms in the famous Van de Wiele line, this jute broadloom is rugged enough to take the heaviest stress. It has heavy cast-iron frames and double roller bearings on the crankshaft. All main gearing has teeth of machined steel.

Two sizes are available. The 168" loom (15,400 lbs.) runs 72 picks per minute; the 210" (18,000 lbs.) runs 68 picks per minute. Picking motion uses long, pretensioned springs and vertical picking sticks.

Production can be increased up to 10% over looms selling for the same price. There's less downtime. Thread breakage is reduced. And the loom weaves a more even fabric requiring less latex.

Here are just a *few* of the other features you'll find on this revolutionary loom:

- Shedding motion suitable for plain and any 4-shaft weave, with positive shaft operation from underneath the loom. There's no superstructure, no cross rails or top-roller mountings on top of the loom.
- Each half beam has negative differential let-off motion controlled by the tension of the warp.
- Electric equipment for start-stop with an electromagnetic brake, direct on-line starter with overload protection, two push-buttons for forward and reverse inching motion and electrically controlled banging-off motion.
- Alemite "one-shot" lubrication system to all main bearings.
- Direct drive by electric motor through V-belts.

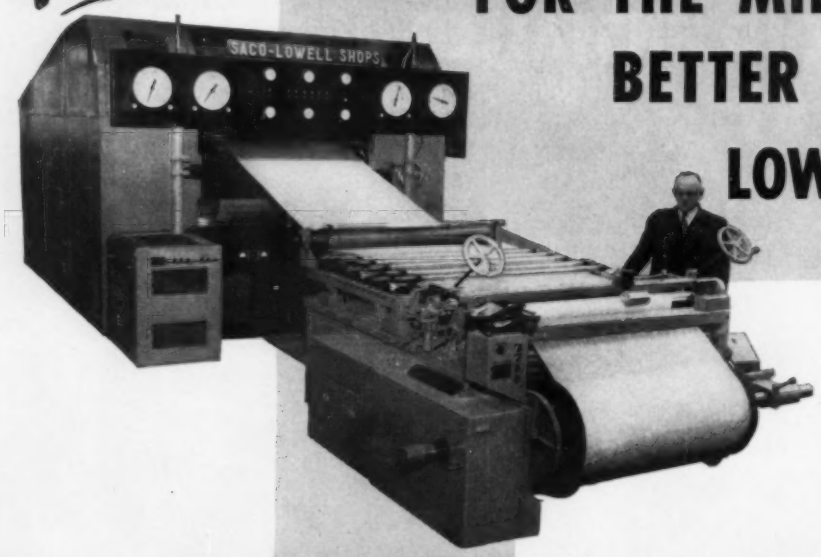
Installed and serviced by A. S. R.

Van de Wiele Looms are distributed, installed and serviced in the United States and Canada solely by American Safety Razor Corporation. A.S.R. provides technical and engineering service and has stocked a complete inventory of replacement parts. All nuts, bolts and screws are American National Standard. **FOR COMPLETE DETAILS** on this productive, heavy-duty Van de Wiele Loom, write to: Industrial Products Division, American Safety Razor Corp., Staunton, Virginia.

PRECISION A·S·R PRODUCTS Industrial Products Division, AMERICAN SAFETY RAZOR CORPORATION, Staunton, Va.

"SERVING THE CARPET INDUSTRY FOR OVER 30 YEARS"

IT'S NEW A HIGH PRODUCTION TOOL FOR THE MILL SEEKING BETTER CLOTH AT LOWER COST...



POSITROL* SLASHER
by SACO-LOWELL

ADAPTABLE FOR COARSE, MEDIUM AND FINE YARNS SPUN FROM COTTON, SYNTHETIC, NATURAL FIBRE AND BLENDS.

The new Saco-Lowell Positrol* Slasher is a universal tool for the sizing of warps. It has produced exceptional results on all types of yarn. Key to the slasher's ability to process all types of yarn is the Saco-Lowell Drying Unit. This unit is strong in structure, reasonable in dimensions and thoroughly insulated. There is minimum amount of warp yardage in dryer at one time. Larger quantities of guided air are handled in the most efficient manner from the standpoint of power and heat conservation.

The combination of a new drying unit with the Positrol* Slasher's new automatic magazine creel, improved size box, and new No. 45 head end result in a worthwhile increase in production per slasher and per man-hour, plus improvement in the overall quality of slashing.

A Saco-Lowell Engineer will be glad to give you complete information and prepare a "Forecast for Savings" based on a Positrol* Slasher installation — another step in your Saco-Lowellizing program.

SACO-LOWELL'S POSITROL* SLASHER

Its capabilities include slashing:

1. Warps containing 8000 ends of No. 90/1 combed cotton.
2. Warps of acetate filament, low-twist 75-denier acetate.

A new catalog is just off the press — send for your copy.

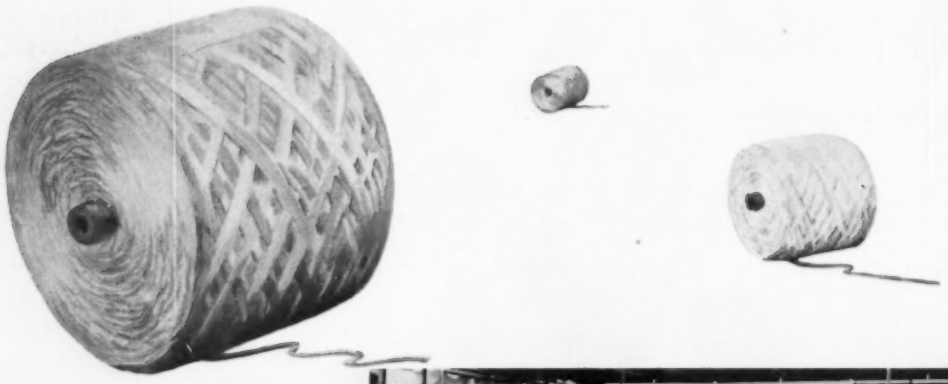
*Reg. Trademark.

SACO-LOWELL
60 BATTERYMARCH STREET, BOSTON 10, MASS.
Shops at BIDDEFORD and SACO, MAINE, and SANFORD, N. C.
SALES OFFICES: CHARLOTTE • GREENSBORO • GREENVILLE • ATLANTA

Du Pont's "Sevron"* Dyes for "Orlon"* and blends with "Orlon"

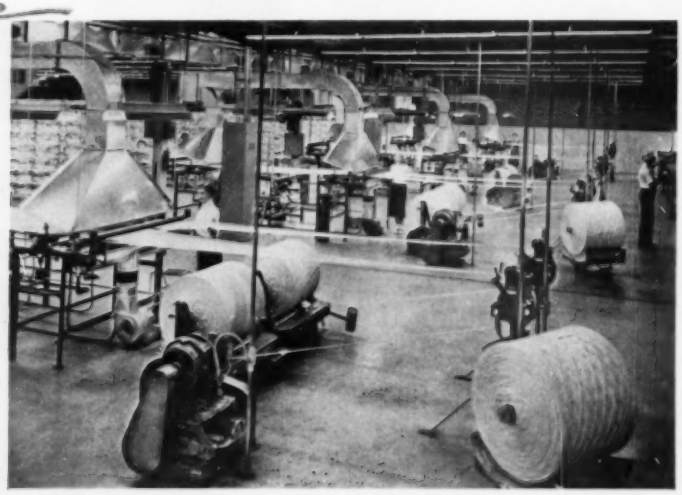
For easy duplication of shades from run to run on fabrics of "Orlon" acrylic fiber, be sure to use Du Pont "SEVRON" dyes. Developed specifically for "Orlon" and blends with "Orlon," these dyes give good light- and excellent wash-fastness. They are level-dyeing for consistent results. Available for a wide range of colors, "SEVRON" dyes may be applied directly to top, stock, yarn and piece goods without using the copper method. Our technical staff will be glad to work with you. Write E. I. du Pont de Nemours & Co. (Inc.), Organic Chemicals Department, Dyes and Chemicals Division, Wilmington 98, Delaware.

*REG. U. S. PAT. OFF.



Why

Coats & Clark, Inc. Selected Cocker Gassing Equipment



Cocker's engineering ability was the first consideration when Coats & Clark, Inc. began planning its modern mill in Toccoa, Georgia. Cocker's experience with all phases of warp preparation made them the ideal choice to work out the many problems involved.

Cocker's complete production facilities — from foundry through its most modern stainless steel plant — assured a perfectly integrated turnkey job. Everything shown in this picture, plus 48 of the most modern coilers, is Cocker produced and installed.

Shown are Double Head Gassing Machines, running from 760 end horizontal magazine cone creels, built for jumbo cones. Each machine produces 600 lbs. per doff. Gassing speed about 150 yards per minute, with adjustable drive to run up to 450 yds. per minute without gassing.

For the most modern warp gassing equipment — and for *any* warp preparatory machinery — always call on Cocker.

New England and Canadian Representatives:

J. S. Fallow & Co., 279 Union St., New Bedford, Mass. • 1215 Greene Ave., Montreal 6, Canada

Visit Cocker's Booths No. 830 and 831, Southern Textile Exhibition.

THE LEADER COCKER AROUND THE WORLD

Machine and Foundry Co., Gastonia, N. C.

WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

BABY your textiles

"In Continental's handy Perfo-Roll wrap!"

Package your favorite pin-ups — or any textile product — in Perfo-Roll! Here is clear polyethylene, in roll form, perforated for rapid and easy dispensing. There are no slip sheets to handle…no bulk to stick or slide. And attractive Shellmar-Betner printing makes your product a stand-out on the textile counter. The diaper wrap above is only one type of flexible packaging that Shellmar-Betnar master craftsmen make for the textile industry. For better flexible packaging, call Continental soon.

Remember!

we convert and print

POLYETHYLENE BAGS and ROLLS

CELLO and VINYL SHEETS and ROLLS

SHELL-PLI CARTON OVERWRAPS

CELLO-POLY BAGS and ROLLS

CONTINENTAL CAN COMPANY

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QUALITY PRINTERS AND CONVERTERS OF FLEXIBLE PACKAGING MATERIALS

Which Vat Dye is

Ci

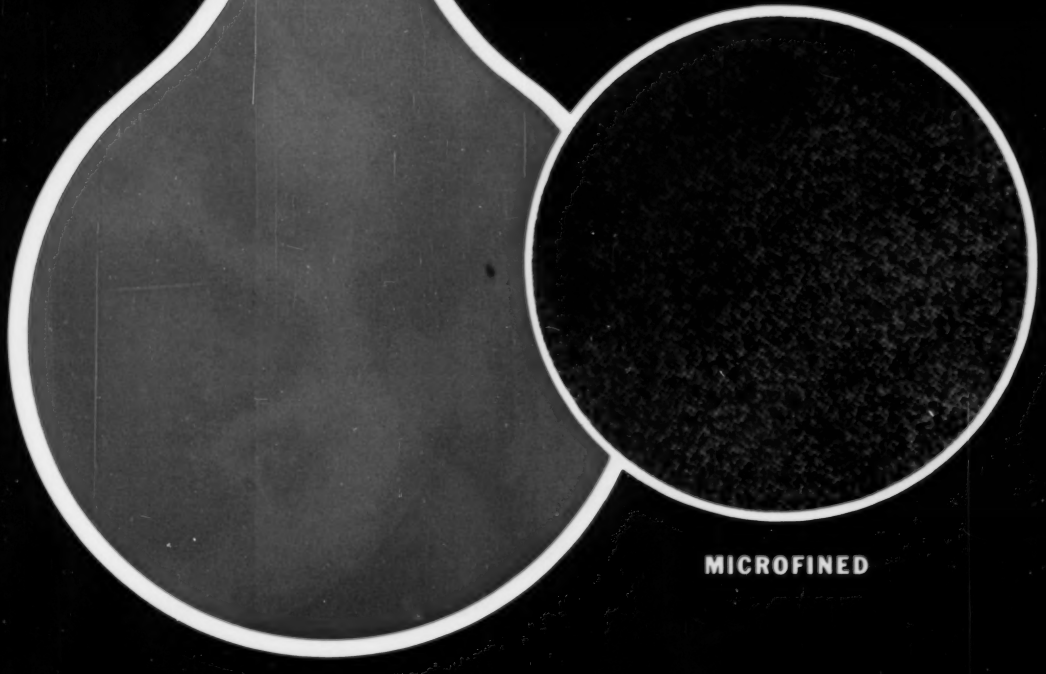
Ordinary

THE BEST VAT DYES

MICROFINED®?

banone®

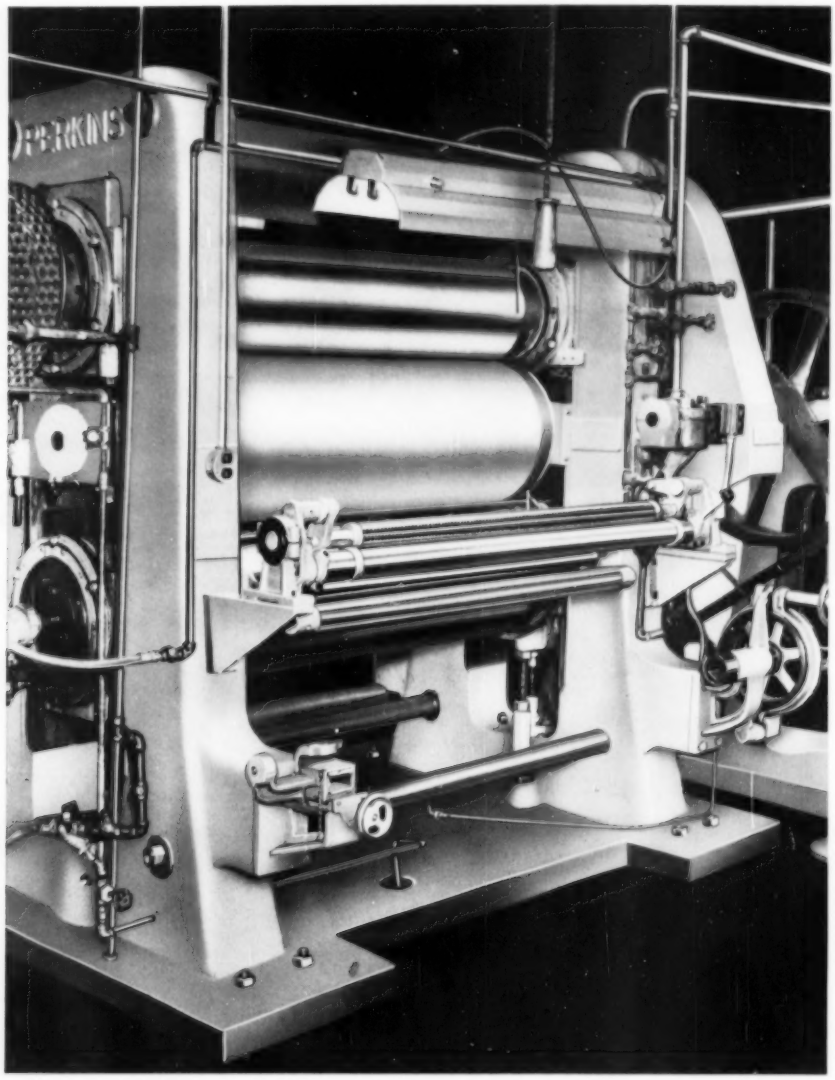
The eye cannot tell which is MICROFINED but the superfine and uniform particle size and perfection of dispersion of CIBANONE VAT DYES are revealed by the microscope, and are evident in SUPERIOR PLANT PERFORMANCE.



MICROFINED

ARE MADE BY CIBA

ANOTHER OUTSTANDING PERKINS TEXTILE CALENDER



Perkins Three-Roll Hydraulic Calender—100 tons gross operating pressure—two chilled iron rolls—one wool felt paper roll—anti-friction bearings throughout—friction brake let-off—three adjustable tension bars—and the famous Perkins mechanism for automatic detection of seams and slubs. A modern, high production calender.

B. F. PERKINS & SON, Inc. • HOLYOKE, MASS.

Southern Sales Office • 1609 Liberty Life Bldg. • Charlotte • North Carolina

Here's why this press roll covering reduces fabric creasing

Fabric creasing is often caused by failure of the press roll to maintain uniform take-up tension on the cloth. Many mills have found that a new press roll covering—Armstrong DK-149—eliminates this problem.

DK-149 has just the right combination of resilience and friction to hold cloth snugly against the full width of the take-up roll. As a result, it maintains take-up tension firmly and uniformly, minimizing creasing in even the most delicate fabrics. Despite its firm grip, the finely textured surface of DK-149 won't mark fabrics.

DK-149 covering is extremely long wearing, too. That's because its sponged rubber composition is reinforced with springy cork particles. It won't pack down or develop "high spots"—even after years of service.

Armstrong DK-149 comes in handy roll form for quick, easy application to the roll. Try it soon. Your Armstrong man will be glad to arrange a test.

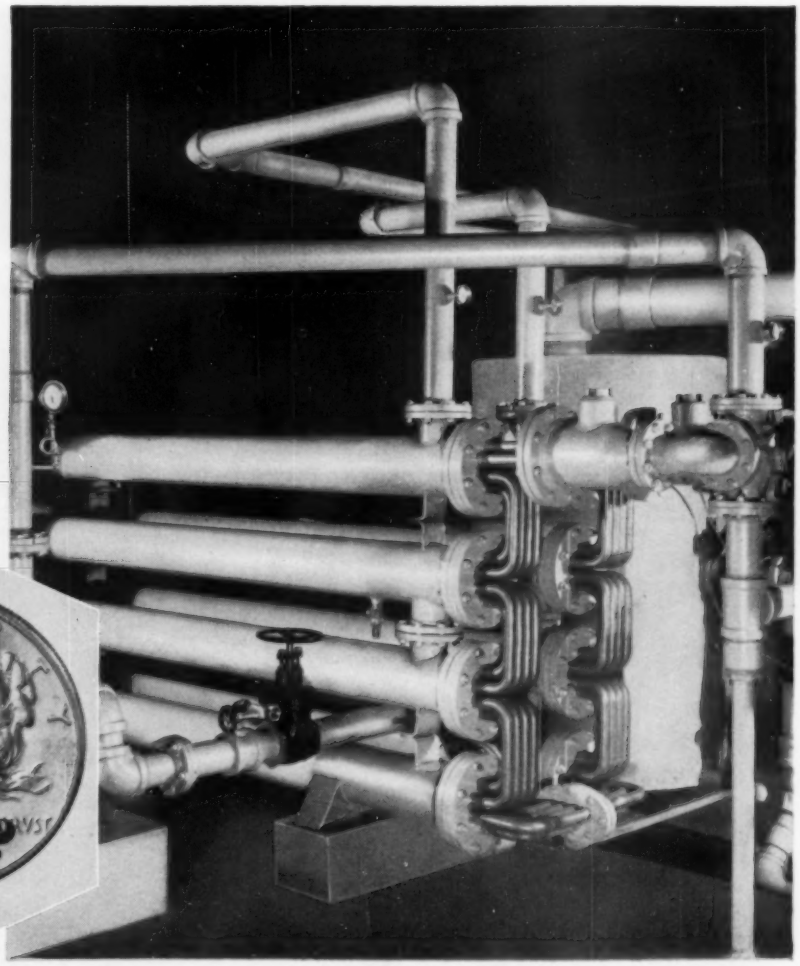
For more information on DK-149 and other Armstrong textile products, write for the booklet, "Armstrong Loom Supplies." Address Armstrong Cork Co., Industrial Div., 6905 Dauphin St., Lancaster, Penna.

Armstrong LOOM SUPPLIES

. . . used wherever performance counts

LOOM CLUTCH DISCS AND INSERTS
TAKE-UP ROLL COVERINGS
LOOM BRAKE AND LET-OFF STRIPS
TEMPLE ROLL COVERINGS

Who would think of dropping dollars down the drain?



NOBODY...but this may be happening in your plant!

And far more than single dollars are involved! Most case histories show that tens of thousands of dollars are being wasted annually in plants with heat in by-product waste water that do not have a Bready System of Waste Heat Recovery.

Good management dictates that recovery of all wastes is extremely important in today's competitive economy. With by-product hot waste effluents one of the biggest contributors to these losses, a Bready System of Waste Heat Recovery deserves your first consideration.

So, if you are interested in seeing your dollars roll into the profit column instead of down the drain, ask for a free Bready survey of your boiler plant operation. Write, wire or phone today for details, or your plant survey.

Ludell *Manufacturing Company*

5204 WEST STATE STREET • DEPT. TW • MILWAUKEE 8, WISCONSIN

MANUFACTURERS OF BREADY SYSTEMS OF WASTE HEAT RECOVERY

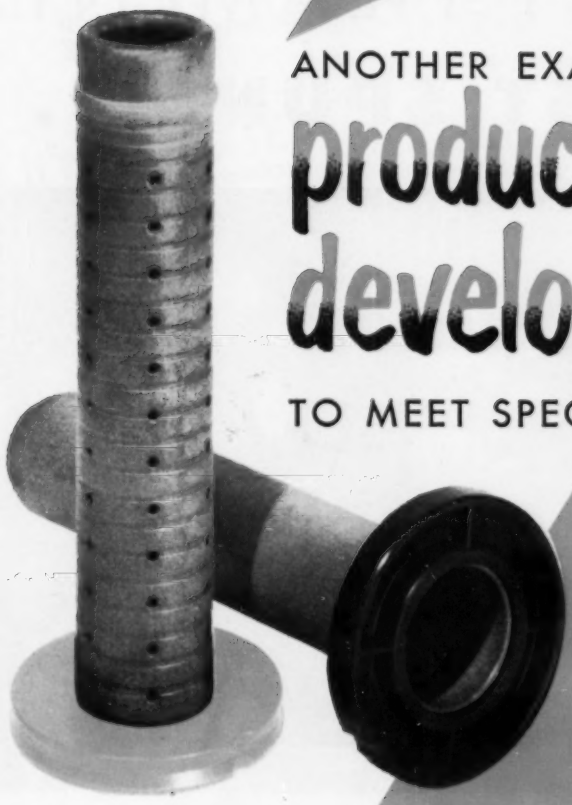
For more information, write direct or use Reader-Service post card.

REPORT FROM SONOCO

ANOTHER EXAMPLE OF

product development

TO MEET SPECIFIC NEEDS



Synthetic Yarn Carrier

Now . . . from SONOCO, a top-notch plastic base, fibre barrel carrier for synthetic yarns. This was originally developed for Fiberglas. With base and barrel modifications, it is adaptable for other yarns. Barrel can be plain, perforated, prick punched, sized, flocked and made with raised or indented scores. Plastic base supplied in various colors for identification.

If you have a carrier problem—consult your SONOCO sales-engineer or write us direct. We are eager to assist you with your production difficulties and our technical facilities are at your service.

sonoco
PAPER CARRIERS
REG. U.S. PAT. OFF.

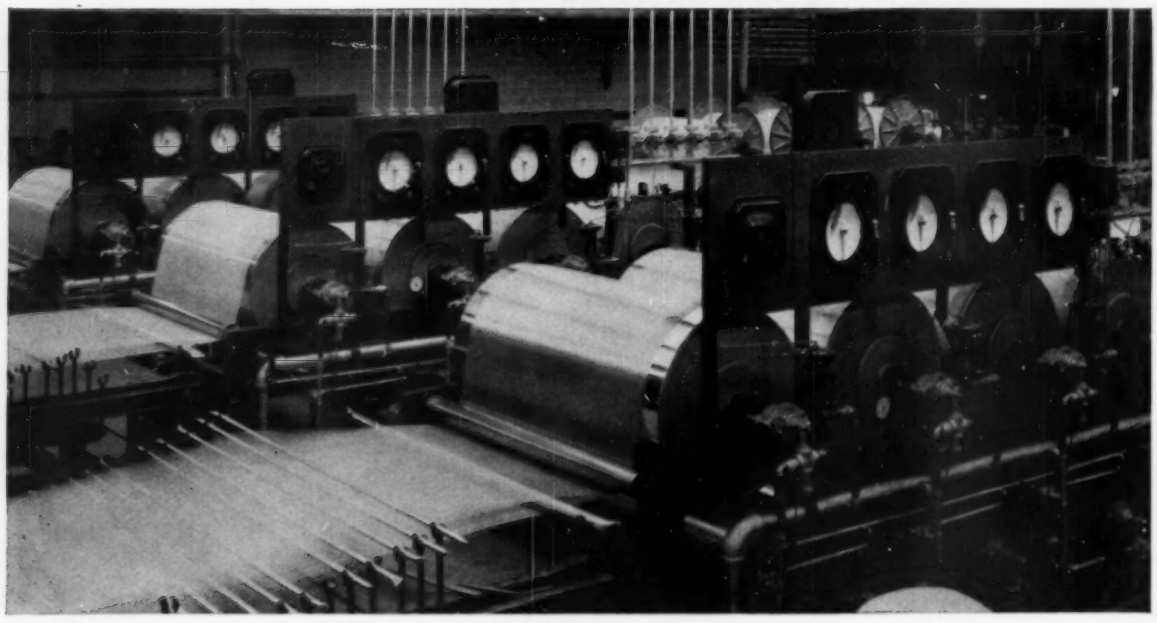
SONOCO PRODUCTS COMPANY

MAIN OFFICE — HARTSVILLE, S. C.

MYSTIC, CONN. • AKRON, IND. • LOWELL, MASS. • PHILLIPSBURG, N. J.
LONGVIEW, TEXAS • PHILADELPHIA, PA. • LOS ANGELES, CAL.
GRANBY, QUEBEC • BRANTFORD, ONT. • MEXICO, D. F.

DEPENDABLE SOURCE OF SUPPLY

"Taylored"
to the LIGHTEST FILAMENTS
or the **HEAVIEST SPUNS...**



FOR the best slashing results, the Taylor method of controlling moisture content of the yarn by regulating the surface drying temperature of the slasher cylinders is the most accurate of any yet devised. And there are Taylor systems for the lightest filaments or heaviest spun yarns.

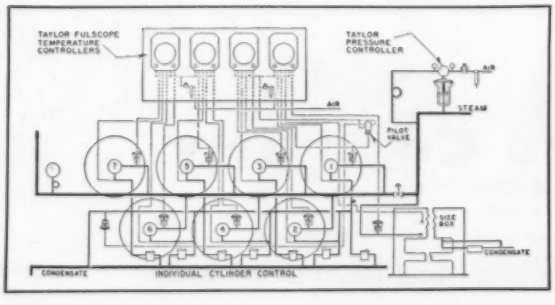
It has been proven that the Taylor Control System will increase weave room efficiency regardless of the type of yarn being run, or the number of cylinders on your slasher.

Two other big advantages are quick, automatic start-up (heat up time is reduced as much as 75%) and the Taylor system of air injection. This gives accurate control regardless of operating temperature.

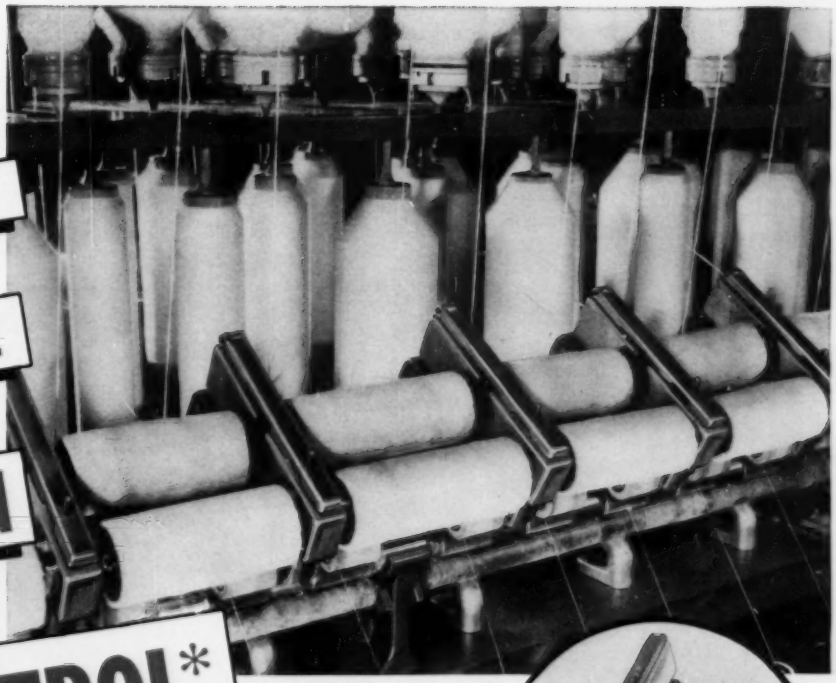
Whether your high-speed slasher is 5, 7, 9, or 11-cylinder, rayon or cotton, you can equip it with Taylor individual or group cylinder control.

• • •

Ask your Taylor Field Engineer, or write for **Bulletin 98229** for details of Taylor systems for *size cooking, storage kettle temperature control, size box level and temperature control*, as well as *slasher cylinder temperature and pressure control*. Taylor Instrument Companies, Rochester, New York, and Toronto, Canada.



Taylor Instruments
MEAN
ACCURACY FIRST
IN HOME AND INDUSTRY

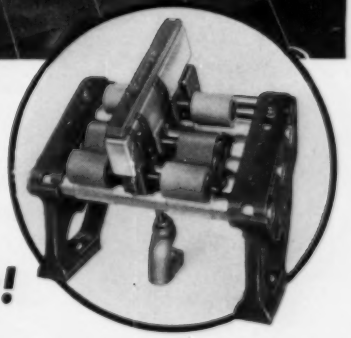


it's SIMPLE

it's ACCURATE

it's CLEAN

it's UNITROL*



Above — Mill installation of UNITROL.
Right — Detail of new unit and rolls.

. . . and only WHITIN *has it!*

* New Center Suspension Weighting Unit and New Top Rolls for Spinning

Whitin's new UNITROL** Center Suspension Weighting Unit and new top rolls for spinning provides maximum performance and yarn quality combined with new lows in cleaning, maintenance, lubrication and spinning costs. It is standard on Whitin spinning frames and available for change-overs. UNITROL has been thoroughly tested in large mill installations.

- **True precision construction**
- **Pre-set internal spring weighting**
- **No levers, saddles or dead weights**
- **Picking reduced 95%**
- **Run out — .001" or less**
- **Whitin anti-friction front rolls; non-lubricated middle and back rolls — all new in design**
- **Complete lint exclusion and grease retention**
- **Smoothly streamlined**

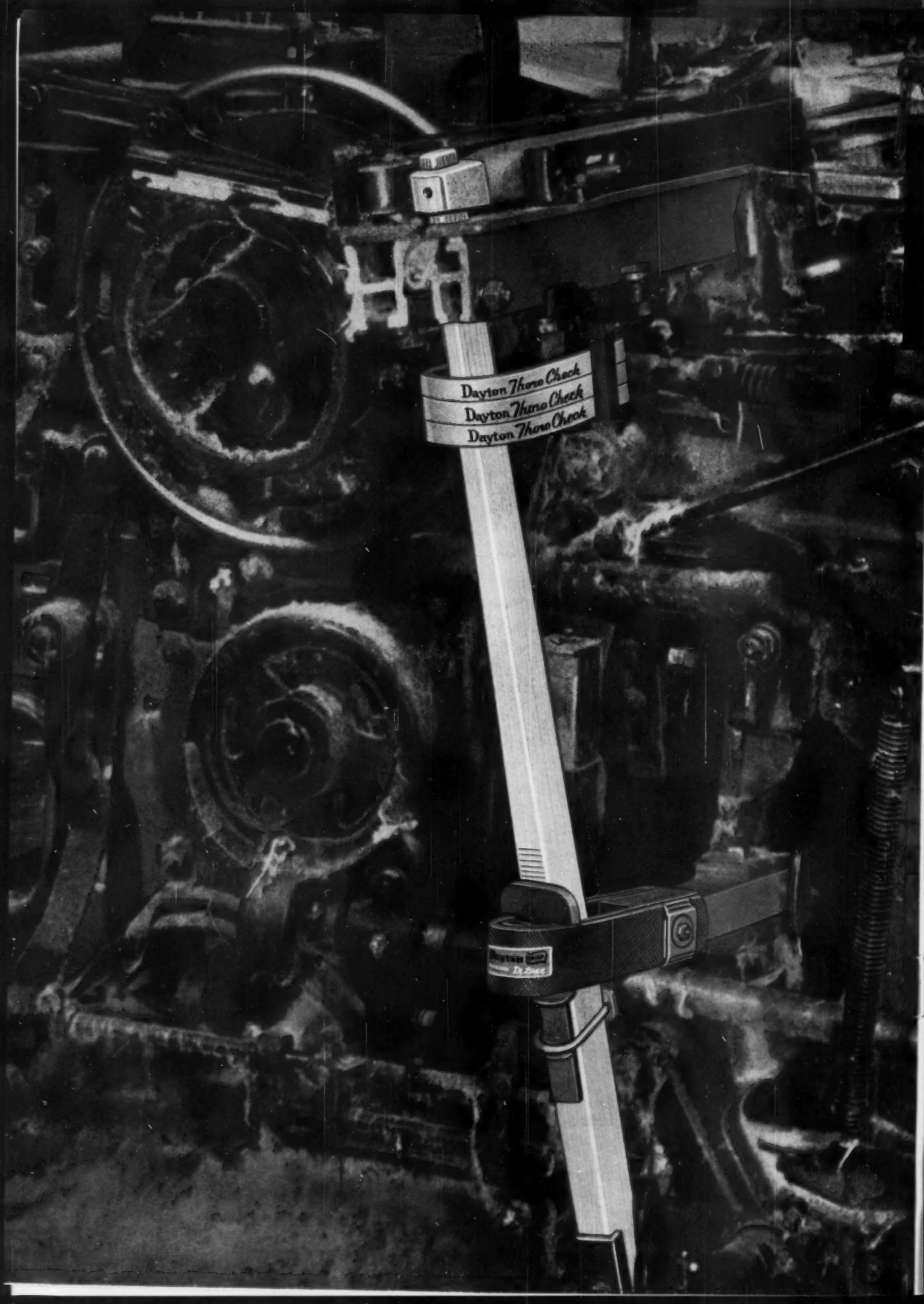
Write today for complete information

Whitin MACHINE WORKS

WHITINSVILLE, MASSACHUSETTS

CHARLOTTE, N. C. • ATLANTA, GA. • SPARTANBURG, N. C. • DEXTER, ME.

** TRADE MARK


Dayton Thore Check
Dayton Thore Check
Dayton Thore Check

Get double and triple service life at all 3 points of shock . . .

with this Dayton Picking Combination

In actual mill tests operating 'round the clock, five days a week, Dayton Thorobred Loop Pickers, ThoroCheck Endless Check Straps and Thorobred Deluxe Lug Straps lasted 2 to 3 times longer than other products doing the same job.

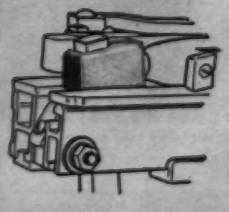
Dayton Thorobred Loop Pickers give double service, cushion millions of shuttle contacts without wear. Tilted construction assures perfect shuttle contact with less strain on the picker. Their flared bottom and tapered picker hole assures accurate seating without tearing the loop ply.

Dayton Endless ThoroCheck Straps in tests on X-2 looms functioned 24 hours a day, five days a week for 9 months without showing any visible signs of wear or needing adjustment. Other straps lasted only 2-3 months. Revolutionary design gives graduated checking action—eliminates drag over stick. Never affected by temperature or humidity, Daytons assure fast Monday morning starts. Patented construction and design fully eliminate permanent elongation.

Dayton Thorobred Deluxe Lug Straps, in mill tests, lasted twice as long as other lug straps. Their one-piece construction eliminates weak connector links. The molded-in plug absorbs the terrific shock, protects expensive loom parts. Super-strength cords in line with thrust direction give greater durability, longer life. Also free of permanent elongation.

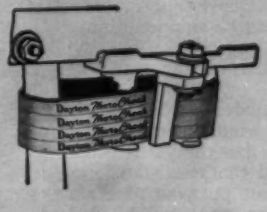
Reduce maintenance and downtime costs with the double and triple service life of Dayton loop pickers, check straps and lug straps. Call your Dayton Representative or write Dayton Rubber Co., Textile Div., 401 S. Carolina National Bank Building, Greenville, S. C.

Dayton Thorobred Loop Picker



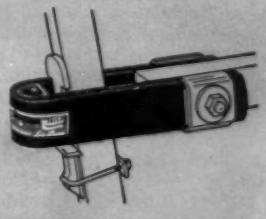
New Design! Narrow back eliminates wear on lay end strap.

Dayton ThoroCheck Straps



Extra economy! Can be replaced singly or in sets.

Dayton Thorobred Deluxe Lug Straps

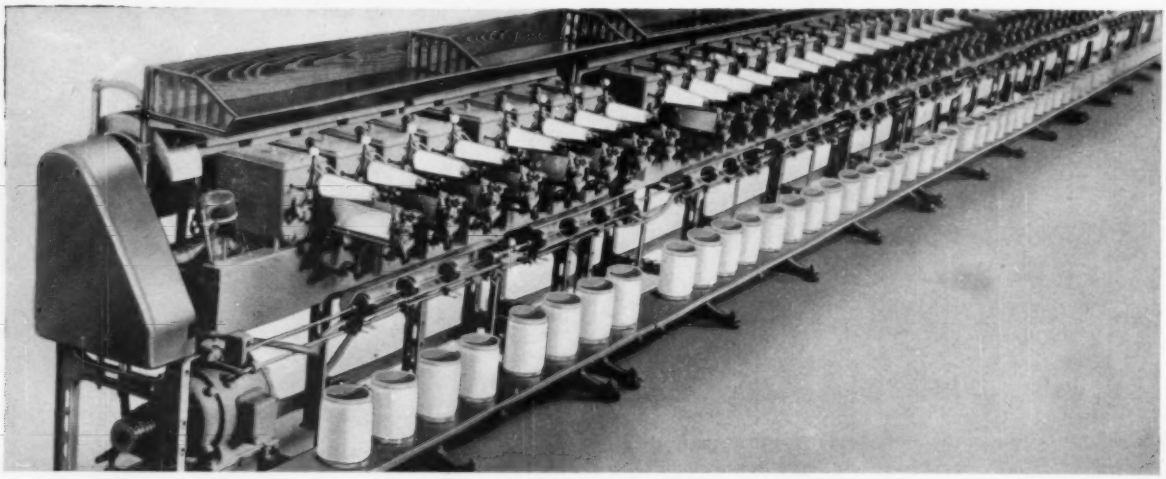


One-piece construction! No rivets or other parts to work loose.

© D. R. 1956

Dayton Rubber 51 YEARS OF PROGRESS

Dayco and Dayton Thorobred Textile Products for better Spinning and Weaving.



Precision Schweiter Monofil-Coner for the production of "Pineapple" bobbins. Equipped with conditioning device comprising trough and roller.

SCHWEITER MONOFIL-CONER TYPE KEK-PN SOLVES WINDING PROBLEMS FOR PLANTS WITH TEXTURED YARNS

Amazingly versatile machine winds delicate yarns as fine as 11 denier — Nylons, Orlons other man-made fibres — at constant yarn speed and tension into uniform and soft cones and cheeses.

ANY CLAIM that a machine is without competition is generally taken with a grain of salt. But in the field of winding delicate man-made fibres, the Schweiter Monofil-Coner Type KEK-PN actually *is* in a class by itself. We know of no other machine made today that can wind the finest yarns into such perfect packages of uniform density, ideal for knitting or other processing.

The yarn runs in a straight line to the cone. For highest production winding, yarn speed can be increased in minutes by changing over to constant spindle speed.

For those yarns where it is desirable, Schweiter has designed a uniform and even compensating gate tension specifically for the Monofil-Coner. Also available is an accurate oiling or humidifying device, built of stainless steel, infinitely variable and quickly adjustable, used to apply the exact amount of oil or moisture to the yarn.

The exclusive "Penta Wind" holds even the most slippery yarn firmly on the wound cone or cheese so that it can be shipped safely, without collapsing.

Smooth and quiet in operation, all gears and revolving parts run in oil in an oil-tight gear and cam box.

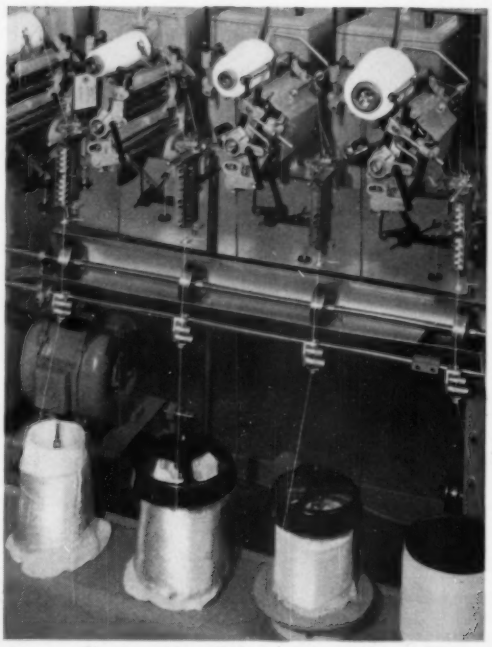
The Monofil-Coner has been proven to be the most perfect winder for rubber, elastic, textured and stretch yarns. It winds them onto the desired package in a completely relaxed state so that the yarns come off unstretched, with all their original quality and characteristics.

To prove that the Schweiter Monofil-Coner can put your plant on a higher level of operating efficiency, the Schweiter people will be glad to arrange for you to visit a Monofil-Coner equipped plant in your own area so that you can see this machine in operation and meet its users, men who will tell you sincerely and frankly what it can do.

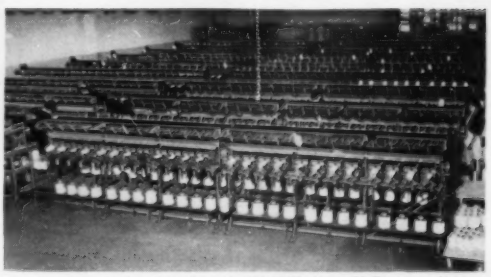
For detailed information, write for descriptive brochure. Or, if you prefer, Schweiter will send you results of actual winding tests made with your own yarn . . . results that will open your eyes to what you've been missing.

SCHWEITER LTD.
HORGEN (ZURICH) SWITZERLAND

Sales and Service in the United States and Canada
H. J. Theiler Corporation
Whitinsville, Massachusetts Spartanburg, South Carolina



Close-up of Monofil-Coner in operation, showing straight-line yarn feed.



A modern plant equipped with 850 Monofil-Coner units for the handling of fully synthetic yarns.

CAN AUTOMATION SAVE YOU MONEY?

IT CAN IF YOU INSPECT AND PACKAGE QUALITY FABRICS

You can save real money with this new way of inspecting and packaging broadgoods. Some mills report 80% to 90% savings on their tubing costs with the Van Vlaanderen Combination Examining, Tubing and Measuring Machine.

Here's how it's done. Finished goods are inspected in the usual way, but with this difference — the machine automatically tubes a perfect package while your operator examines. The operator devotes his entire attention to the examining operation. If you examine every yard of your goods this means a 100% saving in tubing time as well as savings in floor space and power consumption.

Proportionate savings result where only a part of each piece or roll is examined.

Users report that not only have they realized substantial savings with this great new machine but they get better inspecting and packaging too because of the automatic feature and increased operator efficiency.

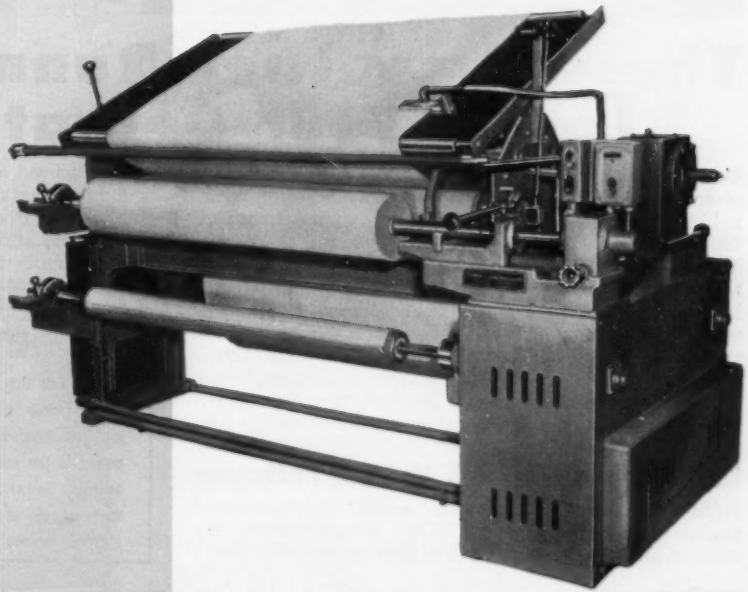
Ask our engineers to give you full information.

The VAN VLAANDEREN COMBINATION EXAMINING, TUBING and MEASURING MACHINE is built with a ruggedness and precision not before available in examining machines. Frames and girts are of cast iron and anti-friction bearings are used throughout.

All fabrics, from sheers to heavy ducks, plastics and paper may be examined, measured and tubed . . . simultaneously or separately.

One-station group control further increases operator efficiency. Starting, stopping, reversing and changes in speed from the slowest examining rate to the highest tubing speed are made effortlessly . . . instantaneously.

Yardage counter is graduated in yards and eighths.



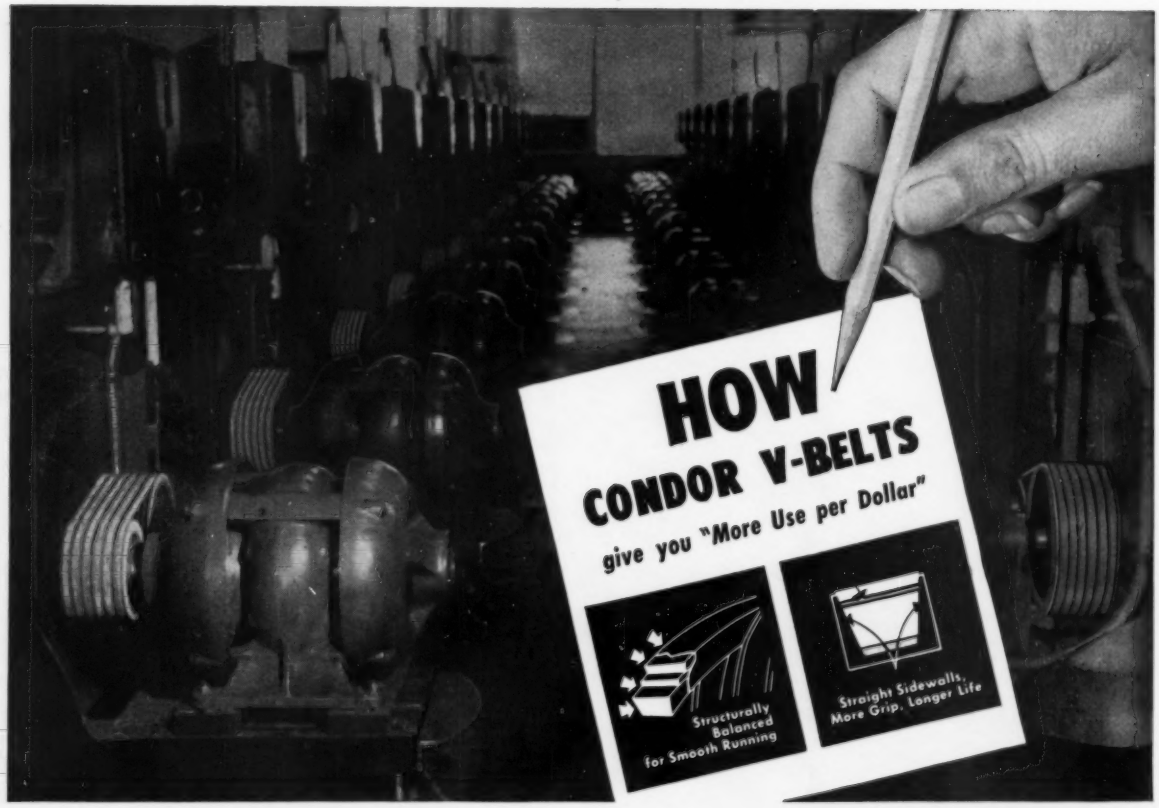
VAN VLAANDEREN

MACHINE COMPANY

370 Straight Street • Paterson 3, New Jersey

Cable Address: Vlaanderen, Patersonnj, U. S. A.

For more information, write direct or use Reader-Service post card.


HOW
CONDOR V-BELTS
give you "More Use per Dollar"
Structurally Balanced for Smooth Running
Straight Sidewalls, More Grip, Longer Life

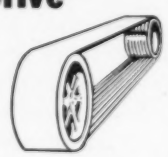
These Smoother Running V-Belts Lower Your Operating Costs

Condor V-Belt engineering makes the difference. The strength member is micro-positioned in heat dissipating rubber for a smoother running, cooler running drive . . . for longer life with the heaviest power loads. Condor V-Belt sidewalls are made *straight* to put positive pressure on the sheave grooves for more grip . . . less slip. Straight sidewalls help support the super-strength synthetic cords of the belt in a straight line so that *all* cords pull equally . . . deliver their maximum share of power. Controlled length is accomplished through prestretching during manufacture to remove inelastic stretch that might otherwise occur on the job.

NOW . . . Moisture-Proof Vacuum Packaging

R/M's exclusive new vacuum sealed moisture-proof packaging assures positive V-belt length control for users of longer lengths in C, D & E cross sections! Belts are measured at the factory under controlled humidity and identified for precise matching. They are then vacuum-sealed in moisture-proof aluminum lined bags. The result—no shrinkage or elongation in storage . . . sustained uniformity on the drive! Length is certified from the factory to the field.

R/M Poly-V* Drive



A New Belt Drive Concept For Heavy-Duty Power Transmission. Eliminates V-belt matching problems. Delivers up to 50% more power in the same space as regular V-belts or equal power in less space.

Write for copy of Poly-V Drive Bulletin #6638.

(*Poly-V is a registered Raybestos-Manhattan trademark)

RM-606

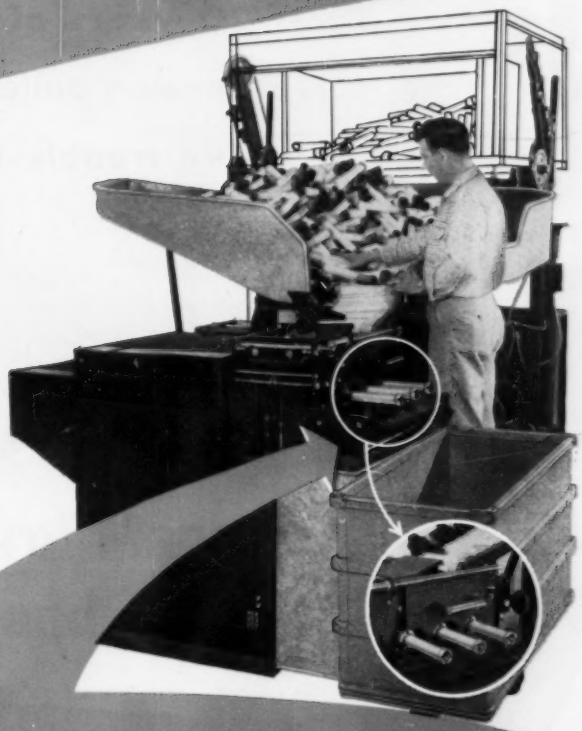
MANHATTAN RUBBER DIVISION—PASSAIC, NEW JERSEY

RAYBESTOS-MANHATTAN, INC.

Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Brake Linings • Brake Blocks • Clutch Facings
Asbestos Textiles • Packings • Engineered Plastic, and Sintered Metal Products • Laundry Pads and Covers • Bowling Balls

For more information, write direct or use Reader-Service post card.

THIS IS EXPENSIVE AND DANGEROUS



THIS IS ECONOMICAL AND SAFE

New Type M Provides a completely safe method of cleaning roving bobbins.

Works equally well on COTTON and SPUN SYNTHETICS.

For complete information on the advantages of New Type M—consult

THE Terrell

MACHINE COMPANY, INCORPORATED

CHARLOTTE, NORTH CAROLINA

Over 20 years of service prove SKF tension pulleys and spindles give *trouble-free* operation

Dependability is the word for SKF-equipped spindles and tension pulleys. Spindles installed in 1928, and pulleys installed in 1934, are still in operation today—with years of useful life still remaining.

Representative of the long service and *low replacement ratio* are the records of one southern mill, accurately kept for the past 17 years. Here, only one bolster was replaced for every thousand in operation during this entire period.

Other mills reporting on the SR-type tension pulley, state that virtually no replacements were necessary on this pulley over similar years of service.

Speaking for themselves, these facts remind you to specify SKF—the original and most dependable anti-friction tension pulley and spindle. 7856

SKF INDUSTRIES, INC., Philadelphia 32, Pa.—
manufacturers of **SKF** *and* HESS-BRIGHT® *bearings.*

SKF®

TEXTILE BEARING SPECIALTIES

Exit end of Niptrol Mangle in use at C. H. Masland & Sons, Carlisle, Pa. Speed of operation is 20 yards per minute; extraction so efficient that remaining moisture is 20% to 30% less than by any previous process. Drying time and drying costs are correspondingly reduced.

Masland uses Niptrol Mangle for padding and extraction

A new two-stage operation by C. H. Masland & Sons uses the Niptrol® Mangle to pad carpeting with direct colors in preparation for development. Penetration is the highest ever observed by this manufacturer.

After development . . . back to the Niptrol Mangle for extraction, again at an exceptional level. Masland reports 20% to 30% less moisture to be removed in the drying operation.

20 yards per minute both in the padding stage and in extraction . . . and both absolutely uniform across the full width of the fabric!

This application is typical of the economies realized by users of the versatile Niptrol Mangle. We'll be glad to discuss your specific problem. Send for Bulletin 54.

RODNEY HUNT®

RODNEY HUNT MACHINE CO.
Textile Machinery Division
66 Mill Street, Orange, Massachusetts, U. S. A.

For more information, write direct or use Reader-Service post card.

Tuffer Card Clothing

You may have the very best cards in the world . . . but is your Card Clothing properly engineered to obtain maximum production of top quality fabrics? Remember, it is your Card Clothing that does the actual work.

Howard Bros. Engineering and Research Laboratory is devoted exclusively to the development of Card Clothing that meets, in every detail, your particular needs . . . "tailor-made" Card Clothing that guarantees **the utmost in efficient production** of high quality fabrics.

Your inquiry involves no obligation.

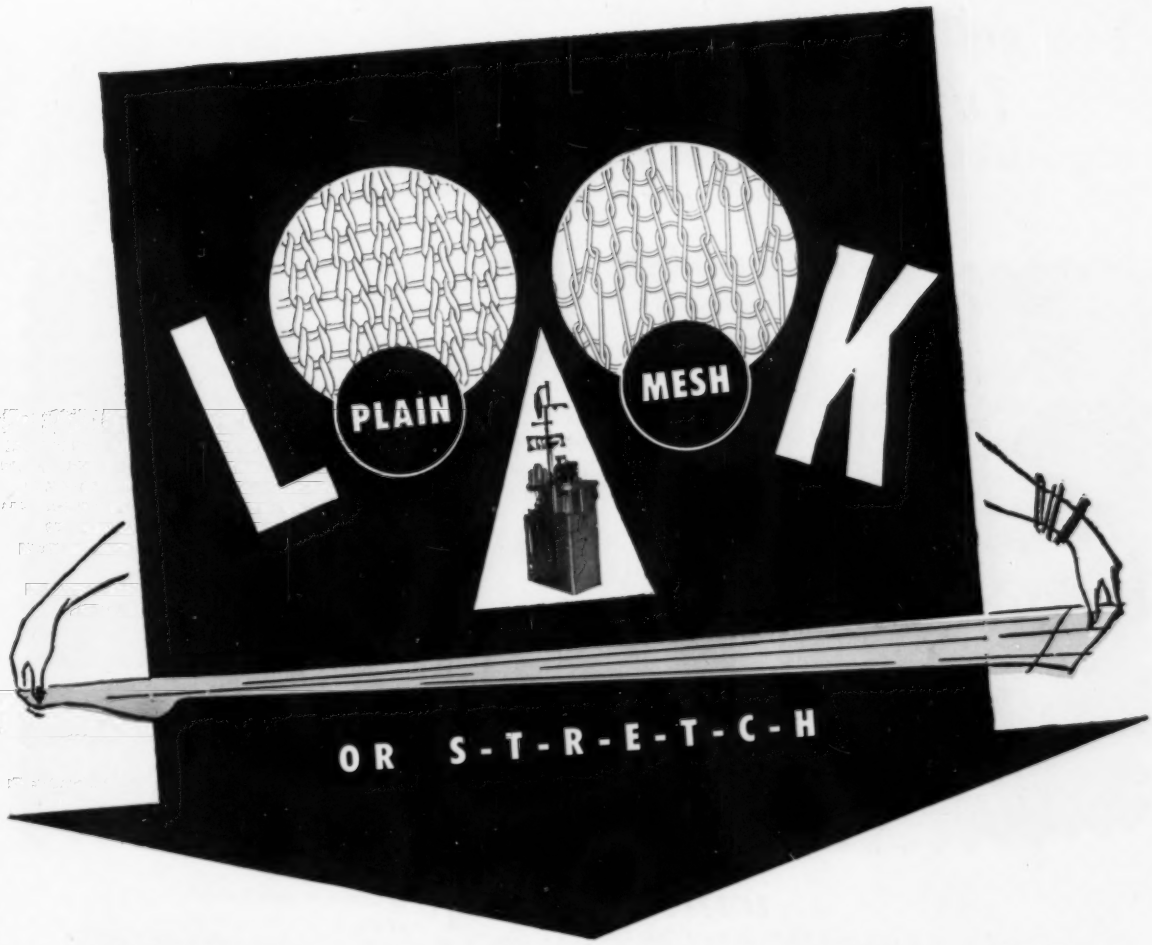
C-2

Manufacturers of Card Clothing for 90 years
1866-1956

HOWARD BROS.

WORCESTER 8, MASSACHUSETTS
Southern Plants: Atlanta, Ga., and Gastonia, N. C.
Direct Representation in Canada

TUFFER PRODUCTS Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing and Brushes • Top Flats re-covered and extra sets loaned at all Plants • Lickerins rewired at Southern Plants • Hand Stripping Cards



THE NEW FIDELITY 400 Knits them all...

and can be changed from plain to mesh fabric in just a matter of minutes.

This "versatile genius" employs a new patented principle . . . not simply an attachment but an integral part of the machine. No wonder people are calling the Fidelity 400 the outstanding development in circular hosiery in 30 years.

Manufacturers can now make their hosiery production as flexible as changing market conditions . . . produce top quality seamfree ladies' hosiery—plain, mesh, or stretch—at the push of a button!

Write for stocking samples today. Or stop in and see the new, electronically controlled Fidelity 400 in operation at our showroom.

Designers and Builders of Intricate, Automatic Precision Machines

SINCE 1911

FIDELITY MACHINE COMPANY, INC.

3908-18 FRANKFORD AVENUE, PHILADELPHIA 24, PA.

EXPORT DEPT.: 25 BEAVER STREET, NEW YORK 4, N.Y.

You get

Totally NEW FABRIC EFFECTS

. . . plus Shrinkproofing

with the unique

RIGGS & LOMBARD COMPACTING MACHINE

Now you can command an extraordinary range of special effects — through new compacting methods which enhance the basic structure of goods in unprecedented fashion and *at the same time* shrinkproofs to commercial standards or better.

The R & L compacting machine, particularly designed to practice the new methods, excitingly transforms woven and non-woven fabrics and yarns of many types by mechanical methods — no chemicals! Nubby fabrics look nubbier, patterned weaves are accentuated with depth dimension added . . . and, after these mere beginnings, possibilities for further developments are practically unlimited. Yarns come up much loftier, for use in new and superior yarn-dyed fabrics.

This compacting machine handles a wide range of weights and types from very light to heavy fabrics such as carpeting, and a variety of yarn counts consisting of any fiber or blend. Reasonable in cost, and needing minimum floor space, it can be synchronized for in-line production at relatively high speeds. Replaces sponging process before tailoring on wool, worsted, blended fabrics — also achieves fine felting effects on worsteds and synthetic fabrics.

Riggs & Lombard collaborated in development of this machine for practicing the new compacting methods on woven and non-woven fabrics and yarns of many types. Now we are sole manufacturers and distributors of this machine in these fields, under licenses from the originators, Fabric Research Laboratories, Inc. Write for complete data. Find out how we helped engineer this new machine — and can engineer an installation that will assure *you* of immediately profitable new fabric effects.

RIGGS & LOMBARD, INC.

Foot of Suffolk Street, Lowell, Mass.

Agents: Paul A. Merriam Company, P. O. Box 86, Providence, R. I., Albert R. Breen, 80 E. Jackson Blvd., Chicago 4, Ill., Larry T. Nelson, 2824 S. W. Montgomery Drive, Portland, Ore., F. W. Warrington Co., 611 Johnston Bldg., Charlotte, N. C., A. Harold Zayotti, Jr., P. O. Box 125, Riverton, N. J., H. E. Mott Co., Limited, Brantford, Ontario, Canada.

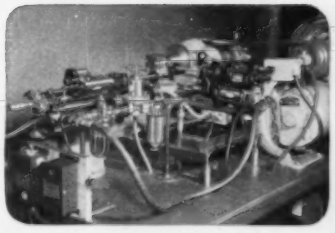
Samples For Free Testing

We can arrange for test run on yarns or fabrics to show shrink-proofing and extraordinary new effects — or to have a representative call to show profit potential in your operation. Just write or phone — no obligation.

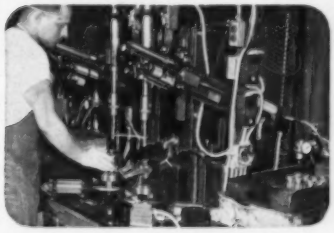
Copyright, 1956 by Riggs & Lombard, Inc., Lowell, Mass.

Are you afraid of AUTOMATION...

...because you think it's too complicated and expensive?



For example, this lathe, equipped with two Bellows Fluid Power Units—performs four operations on the steel shells of oil seals. The fluid power method stepped up production 450%.



Here's a case where Fluid Power control enables one operator to turn out the work of four. He services two units like the one shown. The operation is a critical reaming job on the six chambers of a revolver cylinder.

You don't need to be . . .

You don't need to invest heavily in special machinery—or build intricate robot production lines. For many of automation's practical advantages can be realized with only nominal investments of time and money.

Perhaps you don't yet know how quickly and inexpensively Bellows *fluid power work units* can be used to convert your present machines to automatic operation. Or how economically they can be used to combine several operations in a single special-purpose machine, designed and built in your own plant.

These versatile, precision units combine air, hydraulic, and electrical components into one compact *fluid power* package. This complete-package design assures you a minimum of engineering and installation costs.

In addition, The Bellows Company offers you—through our staff of more than one hundred Field Engineers—the technical know-how to put Fluid Power to profitable use in your own plant.

1376-A

It costs you nothing to get the story. Simply write for your copy of our four color booklet, Bulletin ML-3. Address Dept. TW-556. In Canada, Bellows Pneumatic Devices of Canada, Ltd., Toronto.

The Bellows Co.
AKRON 9, OHIO

 For more information, write direct or use Reader-Service post card.

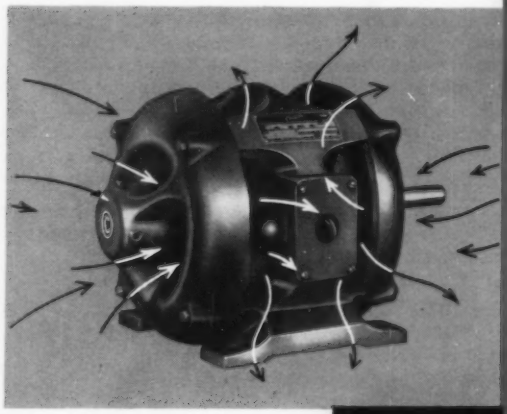
Engineered to blast out clogging lint!

Century Performance-Rated©

TEXTILE MOTORS

The wide open air passages in this Century Textile Motor frame are specially engineered to avoid clogging. You can actually see the lint pass through as the built-in, high-capacity fan blasts a stream of cooling air over the surface of the motor.

Even in the most lint-laden rooms, Century Textile Motors are Performance-Rated to run at normal temperatures with a minimum of maintenance. They are available in a wide range of types and sizes to operate your equipment at top performance.



For information, contact your nearby Century Sales Office or Distributor.

Performance-Rated© Motors
1/8 to 400 H. P.

CENTURY ELECTRIC COMPANY

1806 Pine Street, St. Louis 3, Missouri • *Offices and Stock Points in Principal Cities*

23

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"Cannons are booming!"

Cannon's distinctive sheet display pays off in brand impact at point-of-sale. Find out about fashion-styled corrugated floor and counter merchandisers for your product.

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Subsidiary of West Virginia Pulp and Paper Company

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13 FACTORIES • 42 SALES OFFICES

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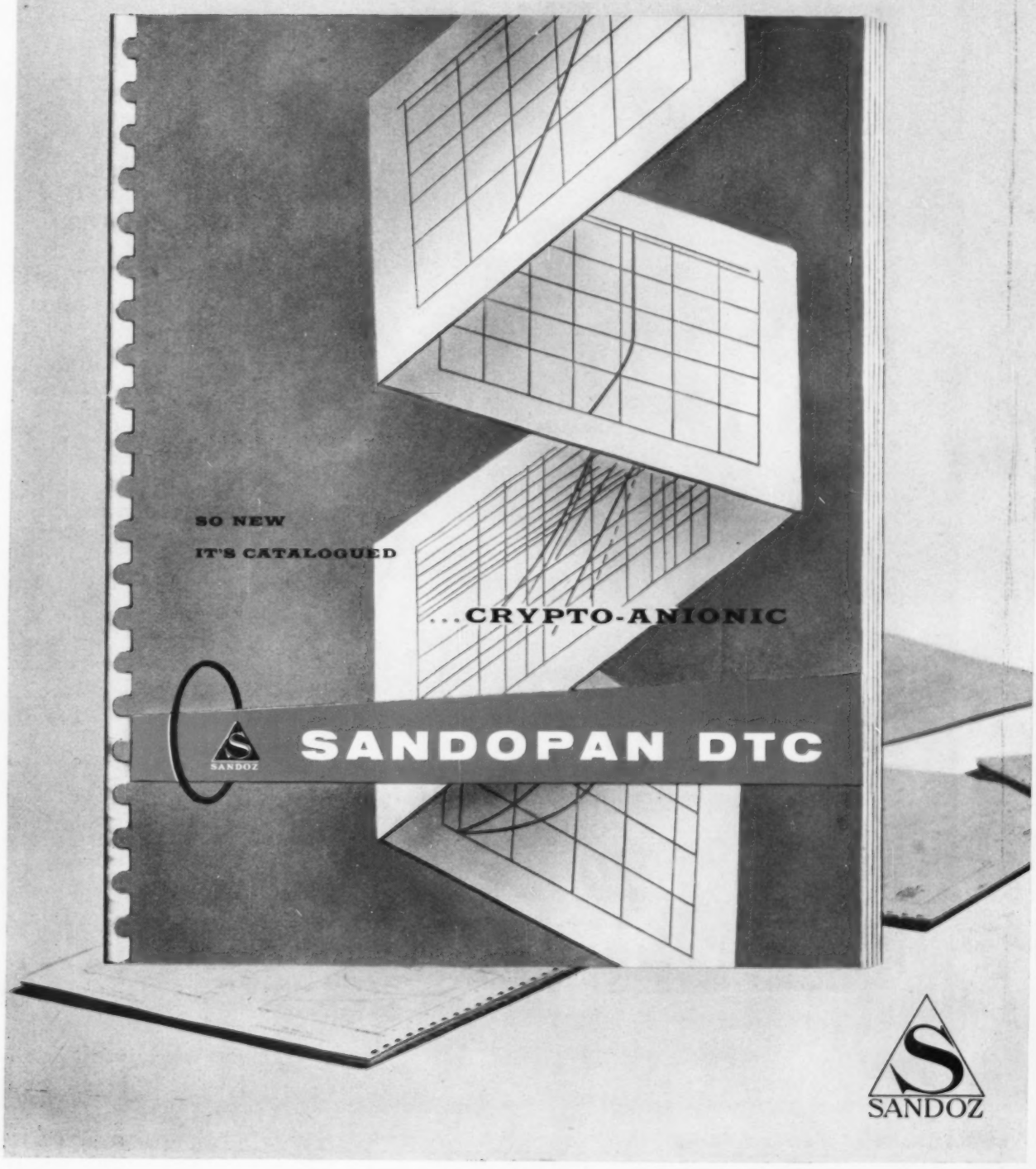
SANDOZ



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reports on its

~~announces a~~ revolutionary

new surfactant

Crypto-anionic SANDOPAN DTC

confirmed by trade reports

A striking advance in the soap and detergent industry...

SANDOPAN DTC combines the most favorable characteristics of anionic soap with the best properties of nonionic detergents and eliminates the disadvantages of either.

SANDOPAN DTC offers you excellent stability, remarkable wetting properties and detergency.

Let us prove to you how SANDOPAN DTC:

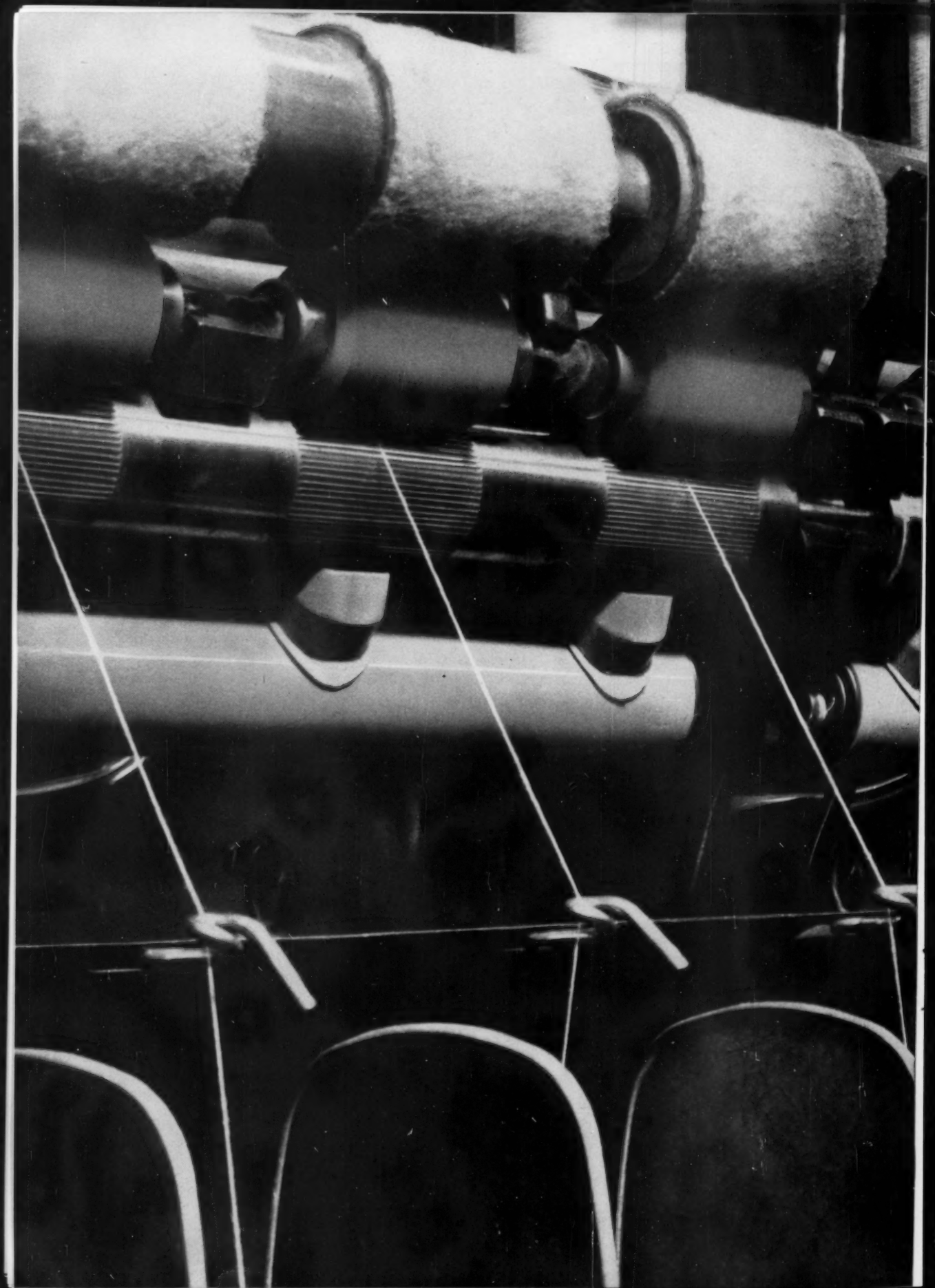
- *speeds up your desizing*
- *improves your kier boiling or your continuous boil-off*
- *increases absorbency*
- *steps up your bleaching efficiency*
- *solves your scouring problems on synthetics*
- *raises abrasion resistance of your resin finished goods*

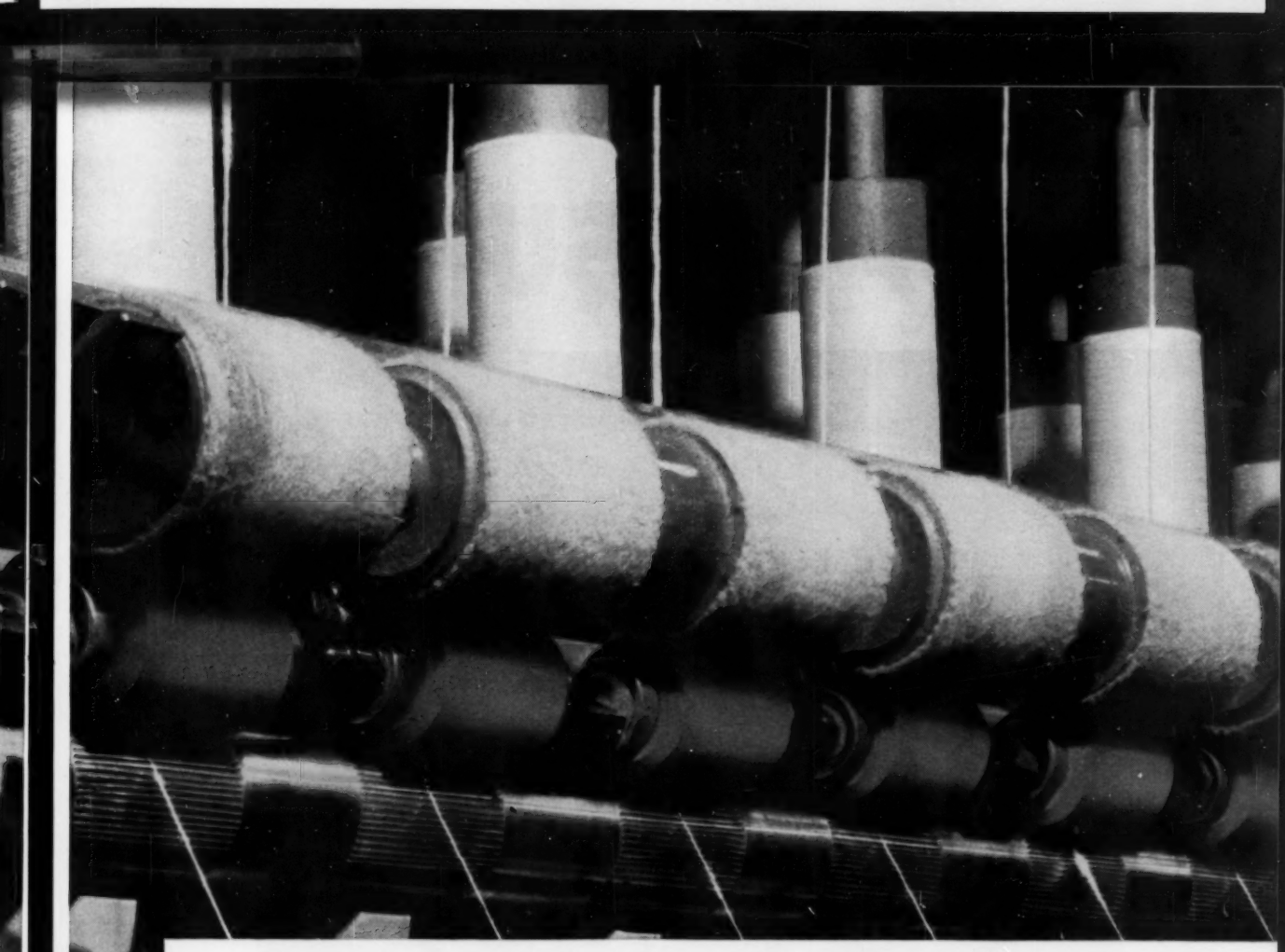
Call your local Sandoz office: Charlotte, N. C.; Fair Lawn, N. J.; Cincinnati, Ohio; Hudson, Mass.; Los Angeles, Calif.; Philadelphia, Pa.; *Montreal, Canada; *Toronto, Canada. SANDOZ CHEMICAL WORKS, INC., 61 Van Dam St., New York 13, N. Y.

*In Canada: Sandoz (Canada) Ltd.

SANDOZ

THINKS AHEAD WITH TEXTILES





Not a lap-up in sight!

. . . BECAUSE
THEY'RE USING
ARMSTRONG J-490
ACCOTEX COTS
—WITH BUILT-IN
LAP RESISTANCE

Armstrong J-490 Accotex® Cots reduce lap-ups no matter what you're spinning—natural fibers, synthetics, or blends.

The reason? J-490 Cots have built-in lap resistance. They're made of a patented synthetic rubber compound that eliminates the basic cause of lapping—electrical attraction between cot and fiber. In fact, the J-490's actually tend to *repel* broken ends.

There are more good reasons for using J-490 Cots, too. They're exceptionally smooth and clean running, with no rough fillers to pull short fibers from stock and cause excessive ends down. And just an occasional re-buffing keeps the J-490 spinning like new . . . turning out strong, uniform yarn for years.

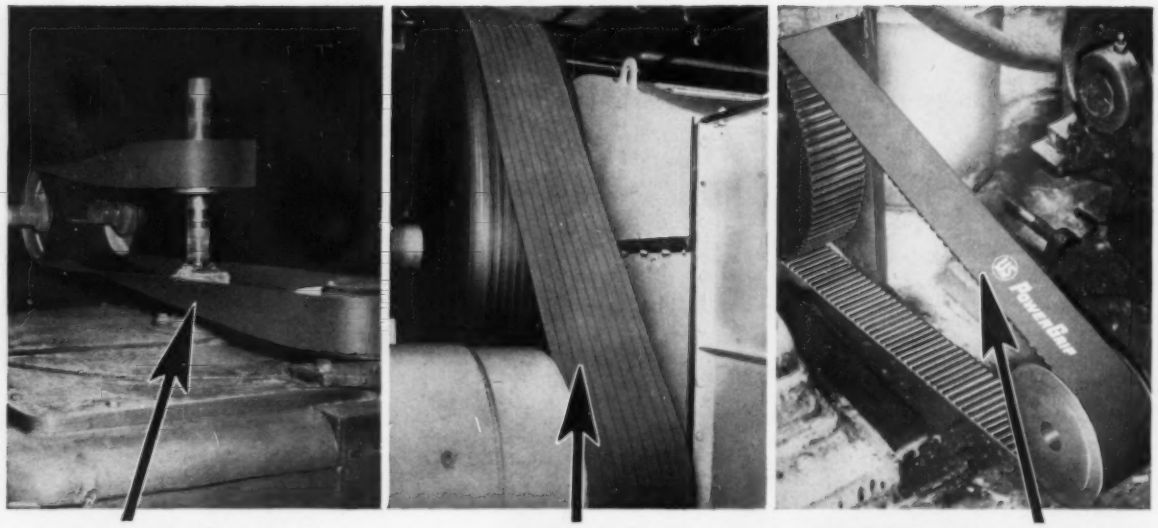
Ask your Armstrong man about a test side of the J-490's. Or write to Armstrong Cork Co., 6505 Dauphin St., Lancaster, Pa.

If eyebrowing is a problem in your spinning room, try the Armstrong NO-742-S Cot. Its "constant friction" surface packs waste well back under clearers—stops eyebrows from forming.

Armstrong ACCOTEX COTS

. . . used wherever performance counts

INSTANT SUPPLY!



FLAT BELTS V-BELTS TIMING BELTS

A Coast-to-Coast Chain of Warehouses

"U. S." is really geared to deliver. You actually get *immediate* delivery or shipment—thanks to your local "U. S." distributor backed by the strategically located District Sales Offices and transcontinental chain of warehouses. The "U. S." Transmission Line includes flat belts and belting, V-belts, sheaves, and PowerGrip "Timing" Belts and pulleys for any power transmission need.

"U. S." engineers study your needs for any specialized drives. See our selected distributors or contact any of our 27 District Sales Offices or write us at Rockefeller Center, New York 20, N. Y.

A COMPLETE DRIVE SERVICE

Multiple V-Belts • F.H.P. V-Belts • SHEAVES

FLAT BELTS AND BELTING

SPECIAL PURPOSE BELTS

PowerGrip **"TIMING" Belts and Pulleys**

Mechanical Goods Division

United States Rubber

For more information, write direct or use Reader-Service post card.

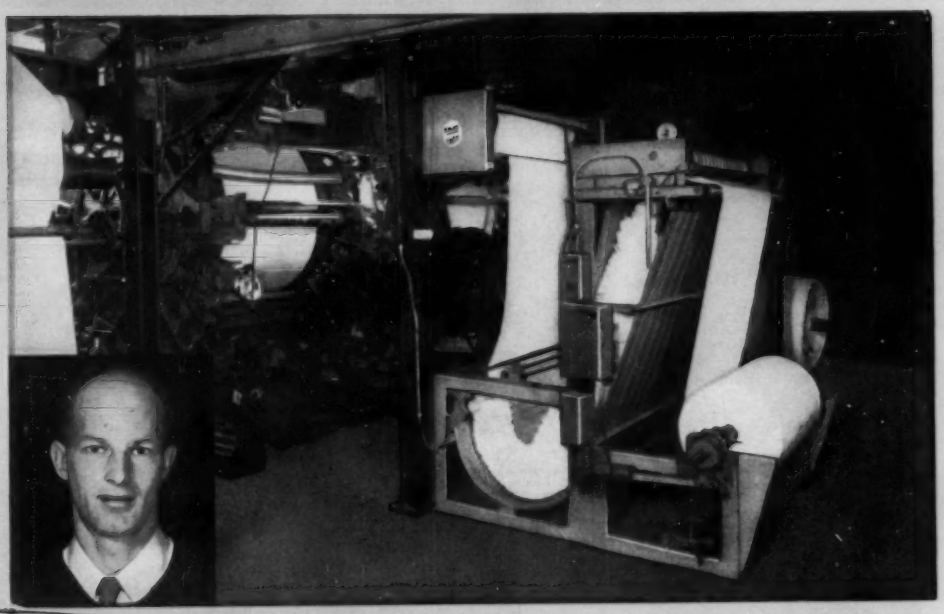
Mount Hope SYSTEM

INCREASE YOUR PROFITS!

Just like Greenwich Printing & Dyeing Co., Inc.

reduces cost of operation—

saves time, labor — increases efficiency.



GREENWICH PRINTING & DYEING CO., INC.

DECEMBER 30, 1954

MR. DOUGLAS ROBERTSON, PRESIDENT
MOUNT HOPE MACHINERY COMPANY
15 FIFTH STREET
TAUNTON, MASSACHUSETTS

DEAR MR. ROBERTSON:

YOU'LL BE PLEASED TO LEARN THAT THE INITIAL MOUNT HOPE CONTINUOUS ROLL FEED SYSTEM WE RECENTLY INSTALLED IN OUR PLANT HAS PROVEN SO SUCCESSFUL THAT WE ARE INSTALLING THIS MONEY-SAVING EQUIPMENT ON ALL OUR MACHINES.

EVEN MORE IMPORTANT THAN THE INCREASED PRODUCTIONS, CONSISTENTLY HIGH QUALITY AND MARKED REDUCTION IN SECONDS, MADE POSSIBLE BY THESE MOUNT HOPE UNITS, IS THE VERSATILITY THEY GIVE US.

OUR ENTIRE PLANT REFLECTS THIS REDUCED COST OF OPERATION THROUGH SAVINGS IN TIME, LABOR, AND OVERALL EFFICIENCY.

SINCERELY YOURS,

GREENWICH PRINTING & DYEING CO., INC.

Frank Duckworth

FD/11

FRANK DUCKWORTH, PLANT ENGINEER

Hundreds of plants are discovering substantial new savings since installing the Mount Hope System of Engineered Cloth Handling. Typical of these is the Greenwich Printing & Dyeing Co., Inc. Take a moment to read the comments of Mr. Frank Duckworth, Plant Engineer.

Learn how much the Mount Hope System can save in your own plant. Have our Production Cost Engineers survey it for you. Write, phone or wire for complete details.

MOUNT HOPE
MACHINERY COMPANY

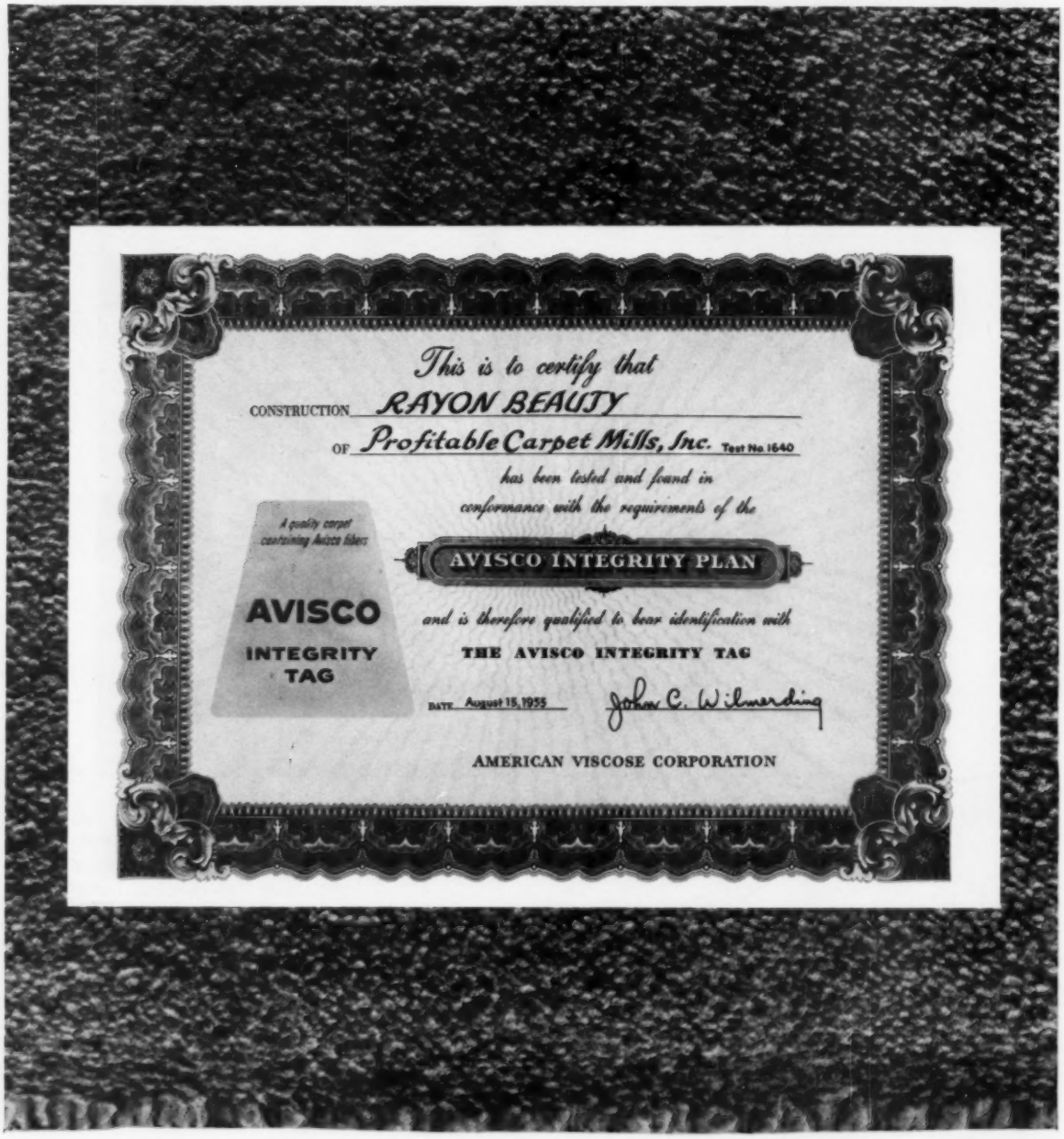
151 FIFTH STREET, TAUNTON, MASS.

Originator of Modern Expanders

Leader in Cloth Handling Equipment

SOUTHERN REPAIR SHOP—CHARLOTTE, N. C.

How the AVISCO® Integrity


This is to certify that
CONSTRUCTION RAYON BEAUTY
OF Profitable Carpet Mills, Inc. Test No. 1640
has been tested and found in
conformance with the requirements of the
AVISCO INTEGRITY PLAN
and is therefore qualified to bear identification with
THE AVISCO INTEGRITY TAG
A quality carpet containing Avisco fibers
AVISCO
INTEGRITY
TAG
DATE August 15, 1955
John C. Wilmerding
AMERICAN VISCOSE CORPORATION

This is the certificate awarded to all rayon carpeting which meets or exceeds the minimum standards established for the Avisco Integrity Plan. This means strict control of pile fiber, pile weight and density, color-fastness and construction.

The award of this certificate is based on development work carried out by the world's largest rayon research laboratory at Marcus Hook, Pa.

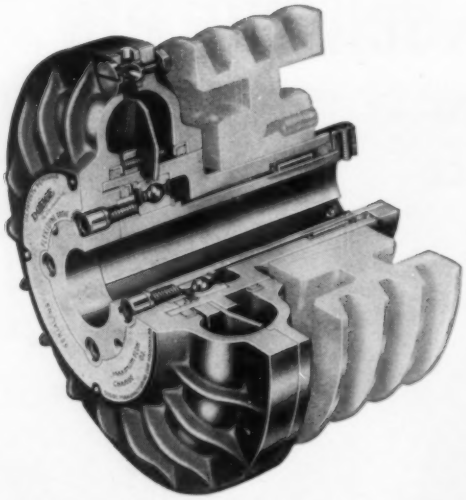
Plan helps sell carpets

This is the tag that flags the customer at point of sale. It tells customers two important facts: 1, that the carpet contains Avisco fibers, used properly, and 2, that the carpet meets Avisco construction standards and represents quality that can be trusted, as described in Avisco national advertising.

It is a boost for everyone—retailer, distributor and manufacturer—when carpeting carries this important tag. A list of approved constructions is mailed monthly to all carpet retailers. A booklet about the Integrity Plan is also available. For copies of either list or booklet, call LA 4-7200 or write:

AMERICAN VISCOSE CORPORATION, 350 Fifth Avenue, New York 1, N. Y.

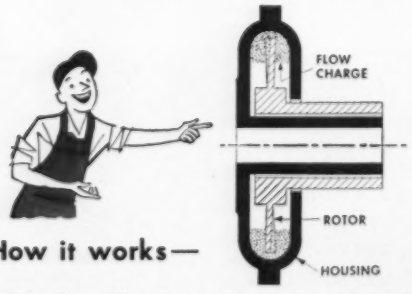
For more information, write direct or use Reader-Service post card.



FLEXIDYNE

THE DRY FLUID DRIVE

Revolutionizes Drive Performance on Roving Frames and Cards!



How it works—

The "fluid" in Flexidyne is heat treated steel shot. A measured amount, called the flow charge, is contained in the housing, which is keyed to the motor shaft. When the motor is started, centrifugal force throws the flow charge to the perimeter of the housing, wedging it between the housing and the rotor which transmits power to the load.

After a momentary slip between housing and rotor the two become locked together and achieve full load speed, operating without slip and at *100% efficiency* during the running cycle.

From the textile field—both cotton and wool—come glowing reports on the performance of Flexidyne, the new "dry fluid drive." Flexidyne provides a new and better way to handle drive problems. It gives textile machinery a really *soft* start. It offers protection against shocks and overloads. It saves power. It gives 100% efficiency at full load!

Flexidyne is so simple, operates so dependably, offers so many advantages that you should have the whole story. Call your Transmissioneer —or write us for Bulletin A-640.

DODGE MANUFACTURING CORPORATION
1400 Union Street, Mishawaka, Indiana

DODGE
of Mishawaka, Ind.

CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable assistance on new, cost-saving methods. Look for his name under "Power Transmission Machinery" in your classified telephone directory, or write us.

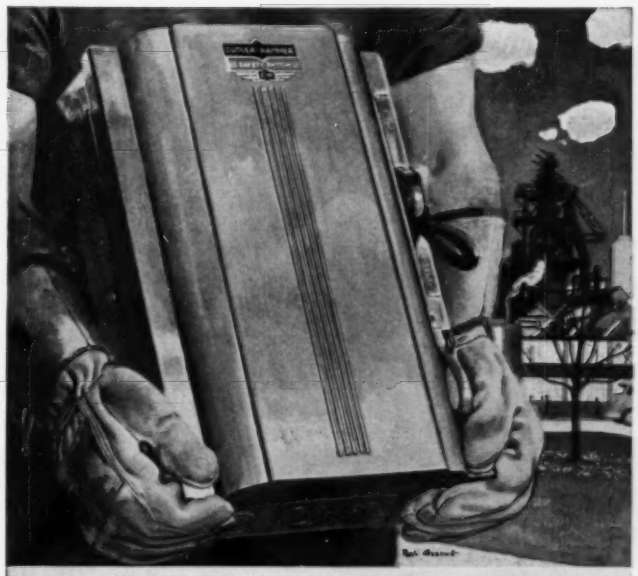
WHAT'S NEW IN MOTOR CONTROL? ★ ★ ★ GET IT FIRST IN CUTLER-HAMMER

Now...A Safety Switch Built to the Standards of Cutler-Hammer Three-Star Motor Control

☆ *installs easier*

☆ *works better*

☆ *lasts longer*



New Bulletin 4105 Safety Switch Type A, 30 to 1200 Amp. Sizes

Engineered for "heat-proof" dependability. New design for minimum internal heat generation; new materials for heat immunity.

Automatic pressure fuse receivers; no screws to forget to tighten . . . no screws to loosen in service by alternate expansion and contraction.

Visible blades for quick and sure inspection at all times. New double insulated steel operating hook. Safety is important in safety switches.

Panel mounted mechanism of this new Bul. 4105 Safety Switch is readily interchangeable with that of the old Bul. 4101 to permit replacements without case and conduit work.

The new Cutler-Hammer Three-Star Motor Control has proved a sensation wherever it has been tested in comparison with any other control equipment. The tougher the tests, the more dramatic has been its demonstrated superiority. A kaolin processing plant in Georgia, for example, reports: "Because of the hard service we give motor control in our plant, we have always had to replace contacts every 30 to 60 days. Our first Three-Star Control unit has now been in daily use for *thirteen months* and its original contacts still look and work like new." A lumber mill in California says: "Control contacts have always been a problem on our drive of the feed chain going to the trim saw. We had to replace contacts every few weeks. Our first Three-Star Control on this job, purchased from the stock of our local Cutler-Hammer distributor, is now in its *twenty-fourth month* of continuous daily operation with its original contacts still in service."

Such control equipment brings important operating dependability and savings to any job where an electric motor is used. But it also means that such better motor control should be matched with a safety switch which can equal the performance of the motor control. And now this is possible. Cutler-Hammer Authorized Distributors are now stocked and ready to serve you with the new Bul. 4105 Safety Switch, the safety switch built to the standards of Cutler-Hammer Three-Star Motor Control. It is loaded with new features. See it. Try it. Prove it. Order one today.

CUTLER-HAMMER, Inc., 1457 St. Paul Ave., Milwaukee 1, Wisconsin.

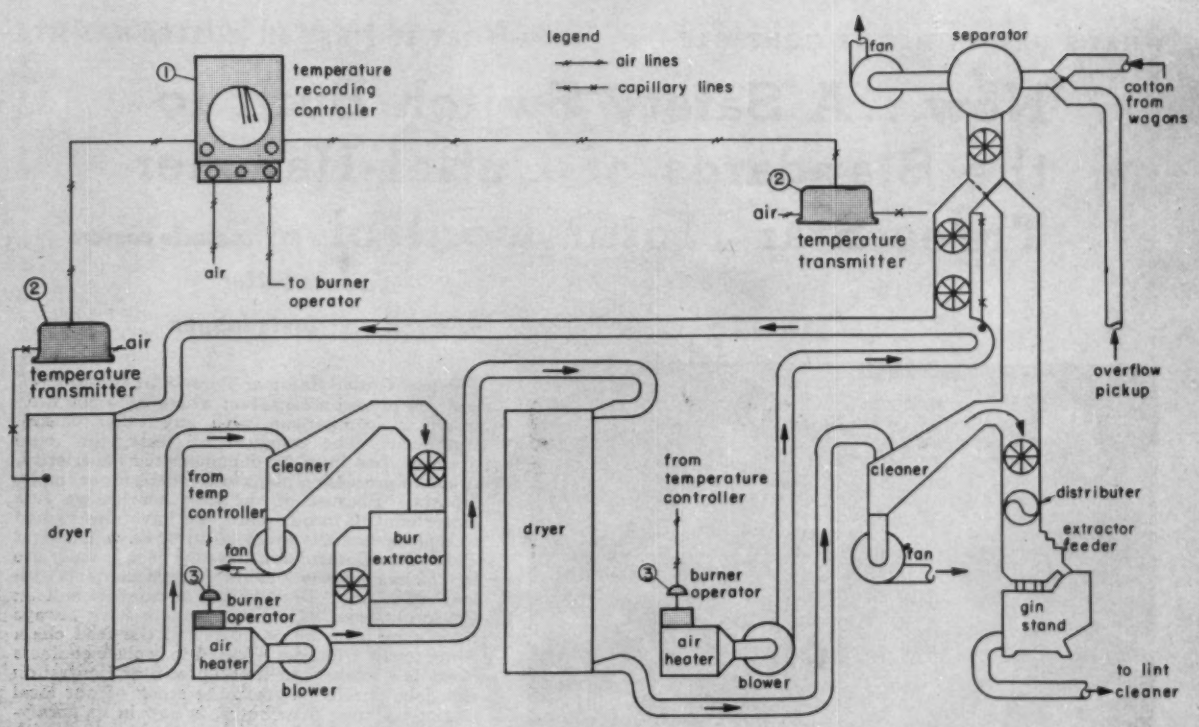
CUTLER-HAMMER ★ ★ ★ MOTOR CONTROL C-H

Cutler-Hammer Three-Star Motor Control can now be obtained in every needed form

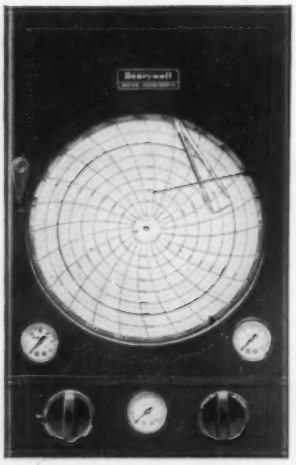
Cutler-Hammer Authorized Distributors carry stocks of Three-Star Motor Control in sizes and types of enclosures to meet all the usual industrial needs.

Leading machinery builders equip their machines with Cutler-Hammer Three-Star Motor Control as standard original equipment, often as components on panels.

The new Cutler-Hammer Three-Star Unitrol provides for the quickest installation or rearrangement of the finest in control equipment, C-H Three-Star Motor Control.

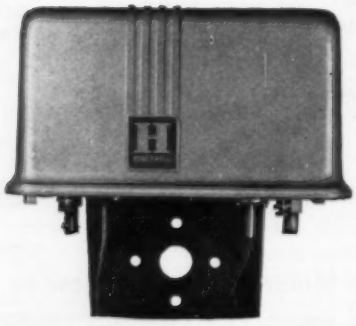


Industry-proved Instrumentation for moisture control



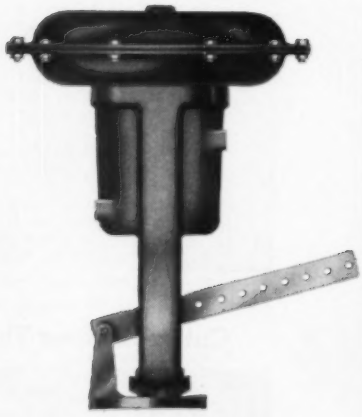
Temperature controllers

(Fig. 1 in diagram) give flexible pneumatic control to actuate a diaphragm-motor type of final control device. Bypass panel lets the operator take over on manual control instantaneously. Can be located anywhere in the mill.



***Tel-O-Set* transmitter**

(Fig. 2 in diagram) detects temperature at the dryer, relays a pneumatic signal to the control instrument. Simple, rugged construction features easy calibration and range changing in the field. Located near point of measurement.



***Air-O-Motor* operators**

(Fig. 3 in diagram) move dampers, louvres or valves in response to control signals from the instrument. Mounted near burner.

For better ginning...

control your

cotton moisture

with Honeywell instrumentation

MOISTURE CONTENT of raw cotton makes a big difference in efficiency of ginning and cleaning. And in the quality of cotton fiber, too.

When cotton is too wet, it's difficult to clean. Dirt and foreign matter stick to it. Wet cotton gets matted on ginning blades . . . interferes with ginning . . . often causes shutdowns for cleaning.

Overdried cotton, on the other hand, becomes so brittle that it's hard to handle in spinning and weaving. It won't take dyes properly. Dried foreign matter breaks up into small fragments that can't be readily removed.

With Honeywell instrumentation you can feed your ginning process cotton of just the right moisture content. Heat input to the air heaters is automatically controlled to compensate for variations in the moisture content of cotton from the fields.

A staff of Honeywell textile process control specialists will design a system to match the requirements of your ginning equipment. The instruments used are standard Honeywell products now at work in thousands of textile mills all over the world.

Investigate Honeywell control *now* . . . before the ginning season starts. Your local Honeywell sales engineer will be glad to give complete facts, and to arrange for installation in time to put it to work in this year's production. Call him today . . . he's as near as your phone.

MINNEAPOLIS-HONEYWELL REGULATOR CO., *Industrial Division*, Wayne and Windrim Avenues, Philadelphia 44, Pa.—in Canada, Toronto 17, Ontario.

H HONEYWELL

MINNEAPOLIS **Honeywell**

BROWN INSTRUMENTS

First in Controls

Rock Hill Printing & Finishing Co., Rock Hill, S. C.

From the standpoint of yardage in finished and printed goods, the largest plant in this country. It is a typical representative of mass production at low cost as best exemplified in American Industry.

LOCKWOOD GREENE
PROJECTS IN . . . . .

TEXTILE FINISHING

Lockwood Greene has completed projects in the Textile Industry valued at over three-quarter billion dollars and offers highly specialized engineering services in all phases of Textile Manufacturing including Textile Finishing.

Continuous management services from site selection to plant completion.

LOCKWOOD GREENE
ARCHITECTS — ENGINEERS

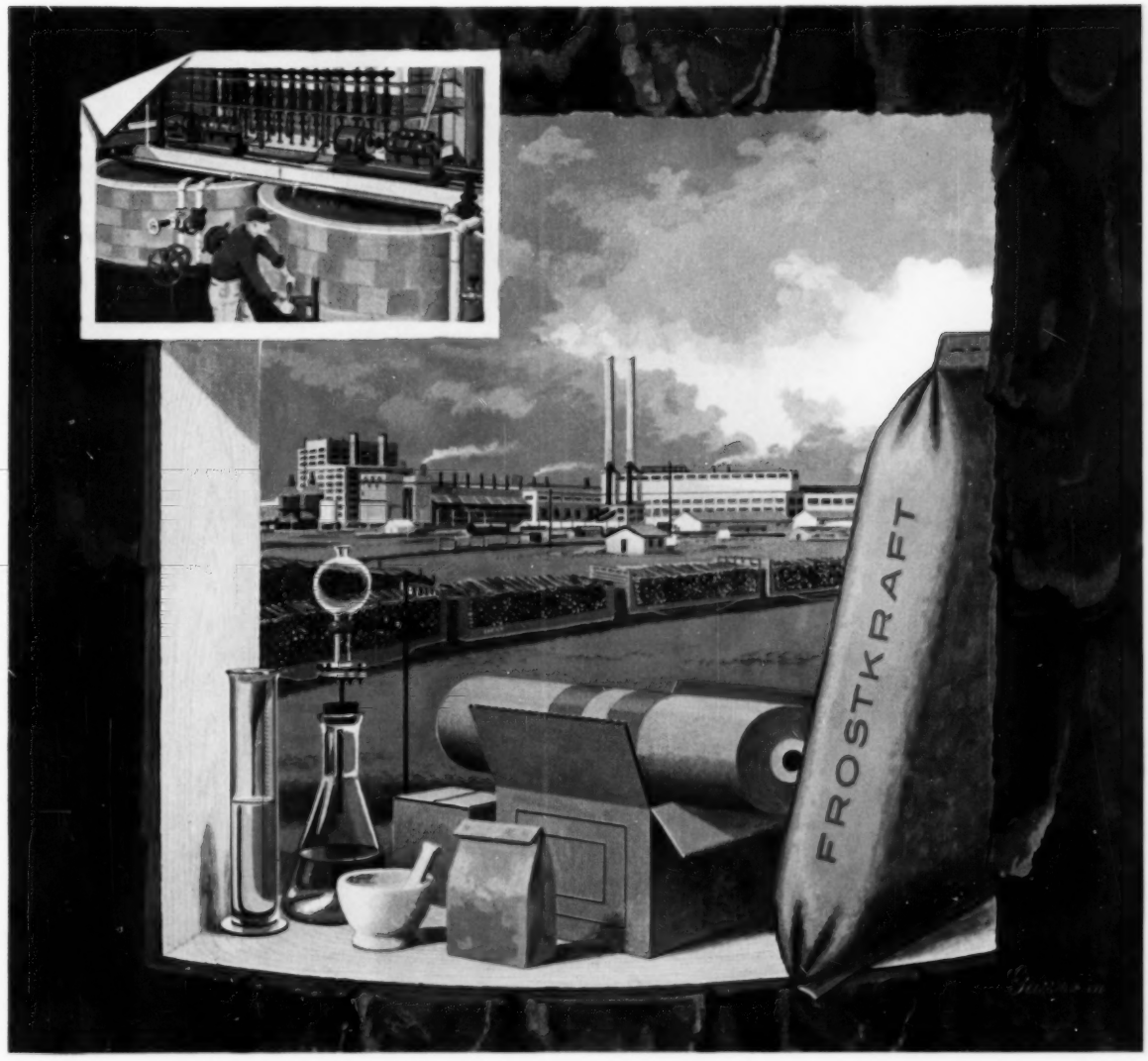
BOSTON 16, MASS. 316 Stuart Street
NEW YORK 17, N. Y. 41 East 42nd Street
SPARTANBURG, S. C. Montgomery Building

OVER A CENTURY OF INDUSTRIAL PLANT EXPERIENCE

BROCHURE AVAILABLE UPON REQUEST

Bishopville Finishing Company, Bishopville, South Carolina
(Division of Reeves Brothers Company)

New rayon finishing plant to handle the product of Reeves Brothers Company Mills in the South.



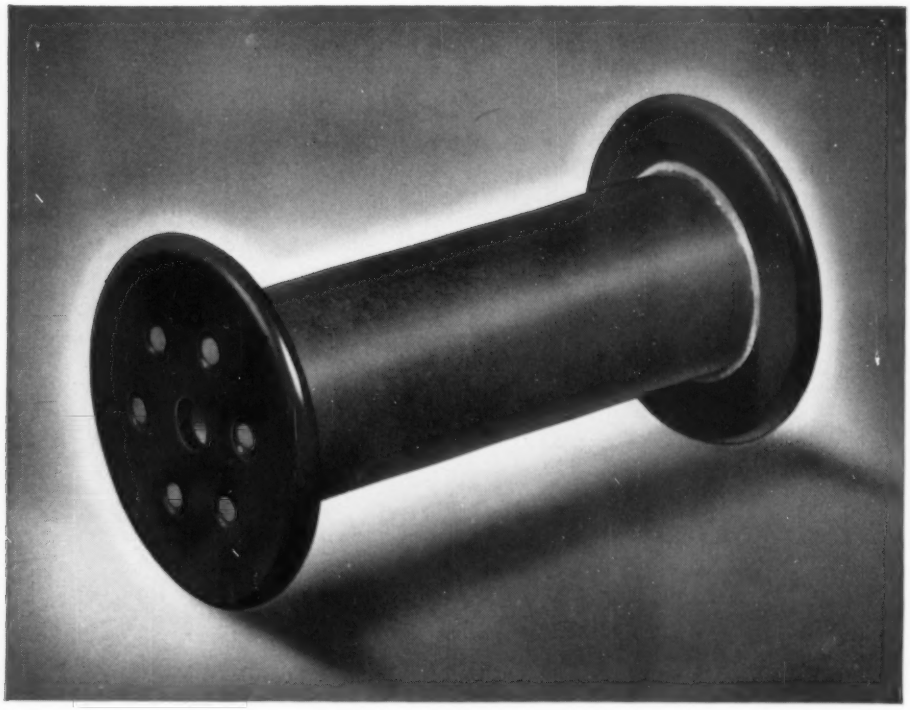
Tough-tempered *FROSTKRAFT* packaging

... better value through quality... better quality through efficiency
... efficiency through integration

FROSTKRAFT bags and corrugated containers deliver maximum dollar value because they are products of a highly efficient, completely integrated industrial operation. Result-conscious Olin Mathieson management controls every step of the manufacturing process... from perpetual forest reserves, to pulp-and-paper mill, to bag and container plants.

A call to your nearest FROSTKRAFT representative will focus Olin Mathieson's tremendous packaging know-how on your Kraft packaging program. Why not contact us today.

FROSTKRAFT
paper products
FOREST PRODUCTS DIVISION
OLIN MATHIESON CHEMICAL CORPORATION
WEST MONROE, LOUISIANA



For smooth-finish, wear-resistant bobbins

...use Taylor Fibre and Laminates

Bobbin heads with high impact strength, smooth finish and excellent wear resistance are made from Taylor Grade LLL laminated plastic or Taylor Bobbin Fibre. Both are easy and economical to machine and punch. Together they afford a good range of strength and wearing properties to cover nearly any bobbin application.

Bobbin spools use the smoothness, high strength and stability of Taylor Grade XX laminated plastic tubing. A non-bleeding material, in steaming or setting operations. Tubes come in outside diameters from 3/16" to 20" . . . turned, sanded or ground finishes available.

Taylor manufactures no finished products for mill use . . . but specializes solely in production of materials for equipment manufacturers. A broad variety of vulcanized fibre and laminated plastics, in sheet, tube and rod forms for economical production, is ready to serve your requirements.

In shuttles, sizing bobbins, spinning bobbins, package tubes, bearing blocks and cam followers, these materials add extra value in performance . . . extra savings in production. Specify Taylor materials for the equipment you manufacture, and make sure that Taylor materials are used in the equipment you buy for your mill.

TAYLOR FIBRE CO.—Plants at Norristown, Pa.—La Verne, Calif.

Call on Taylor for Materials Application Engineering

Specialists on Taylor's engineering staff are well qualified to help solve materials problems for textile equipment manufacturers. They will analyze your specific application and help you select and apply the most effective and economical grades of Taylor materials. For a consultation, write or call your nearest Taylor office.

TAYLOR
Laminated Plastics
Vulcanized Fibre

For speedy service on

VEEDER-ROOT COUNTERS

...Send them here...to the VR® Southern Headquarters

Been figuring on sending some counters in for a tune-up? *Well, now's the time to do it.* Veeder-Root's Southern Headquarters . . . with its completely equipped set-up for service and its full staff of top technicians . . . is all set to take care of all your needs, big or little, *right now.*

Service is just as fast as you ask for it. And the quality of the work is what you always expect . . . *and get* . . . from Veeder-Root. So just pack up your counters and send them to Veeder-Root Inc., Greenville, S. C. The address is Box 297. Or if you're coming over the road, we're just six miles from Greenville on the Spartanburg Highway.

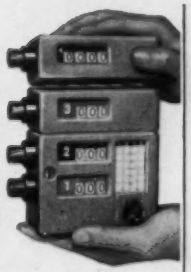
VEEDER-ROOT INCORPORATED VR®

HARTFORD 2, CONN. • GREENVILLE, S. C.

Chicago 6, Ill. • New York 19, N. Y. • Montreal 2, Canada
Offices and Agents in Principal Cities

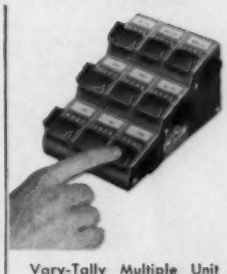
. . . and here's why it's wise to make sure all your New Machines are equipped with NEW VEEDER-ROOT COUNTERS . . .

Modern Veeder-Root Counters . . . for looms, frames, knitting machines and all types of textile mill equipment . . . are built with unmatched Veeder-Root know-how and quality to give accurate facts-and-figures through years of trouble-free service. Count on Veeder-Root for *closest Countrol* of production and uniformity. Write Veeder-Root for all your counter needs.



2-3-4 Convertible Counters for looms, frames, knitting machines, etc.

Loom Cut Meters for controlling uniform cuts of cloth.

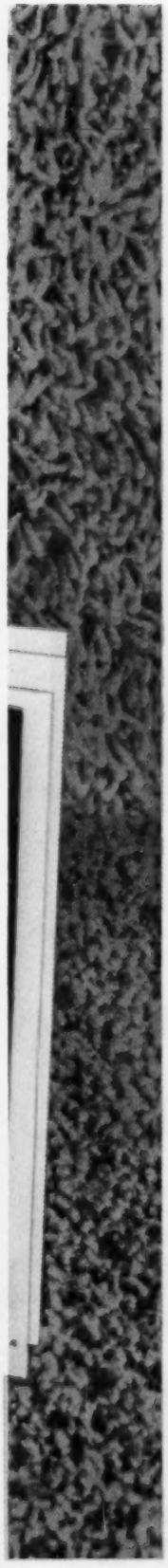


Vary-Tally Multiple Unit Reset Counters for inventory, inspection, and 1,001 other hand-counting jobs.

Double-Wheel Linear Counter for indicating lengths in feet, yards, etc.

Box 297, Greenville, S. C. Telephone Greenville 3-1371

For more information, write direct or use Reader-Service post card.



new textures in nylon carpeting now available

IT'S THE NEW LOOK WITH PERMANENT TEXTURE

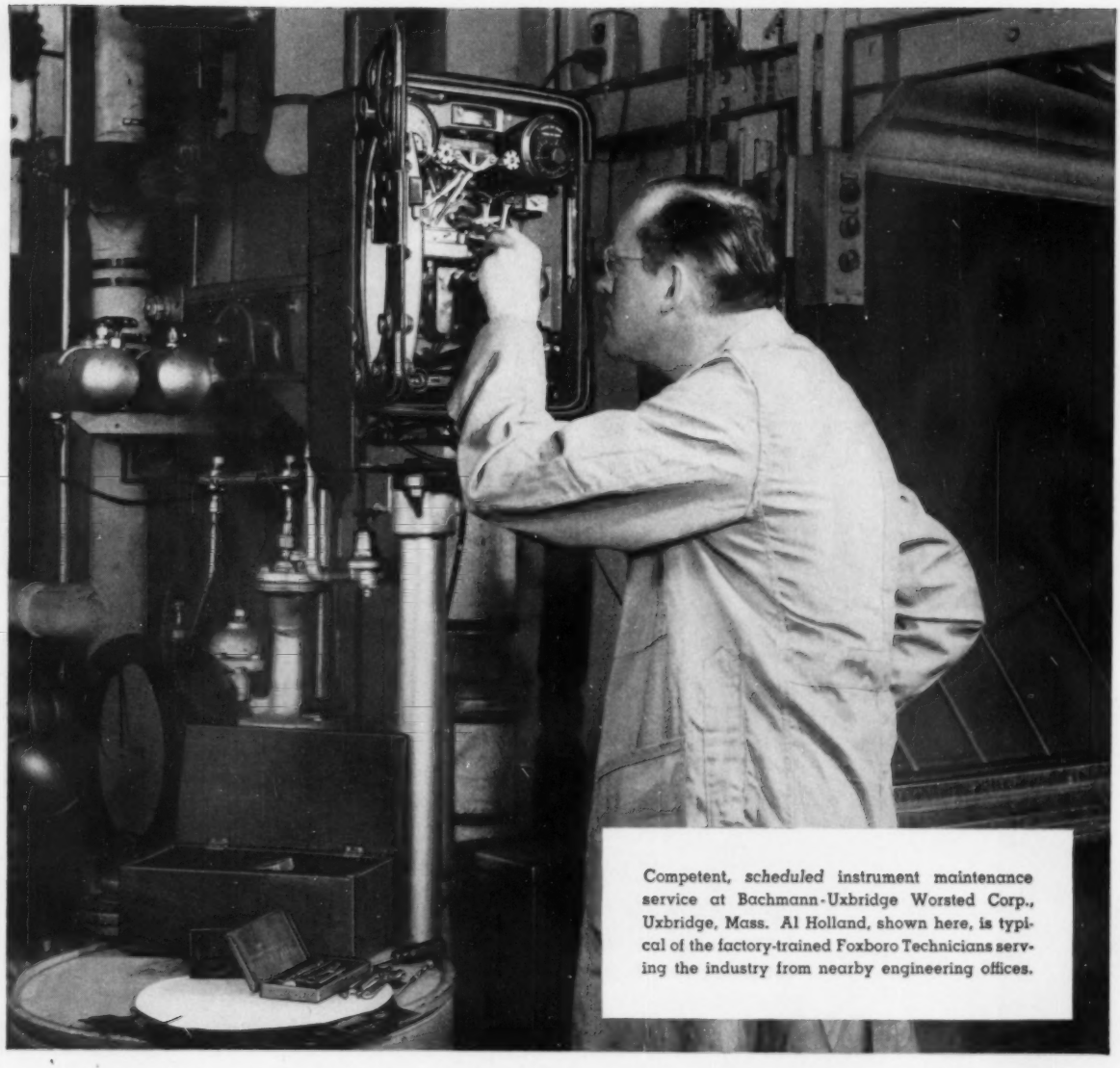
The New Look is made possible by new special twist-setting techniques developed by IRC for the **New Nylon Staple.** For stock dye, yarn dye or piece dye methods, these techniques give nylon carpeting *more permanent retention of original textures than you get with comparable fabrics made from natural or cellulosic fibers.*

Complete, definitive information on how to achieve these textures is available to you. The study includes samples of many different textures, before and after shampooing. Write or call us today, so that we may present this important development to you personally.

THE NEW Nylon Staple I·R·C

INDUSTRIAL RAYON CORPORATION

Sales Offices: 500 Fifth Ave., New York 36, N.Y. 627 Guilford Bldg., Greensboro, N. C.



Competent, *scheduled* instrument maintenance service at Bachmann-Uxbridge Worsted Corp., Uxbridge, Mass. Al Holland, shown here, is typical of the factory-trained Foxboro Technicians serving the industry from nearby engineering offices.

Scheduled Service that saves you costly shutdowns!

There's no better way to avoid costly interruptions to production than by keeping your Foxboro Instruments and control systems operating at peak efficiency. And the simplest, most economical way to do it is with a Foxboro Scheduled Service Agreement.

Under this plan, a Foxboro Service Technician will call at your plant at regular, specified intervals to maintain, clean, and service your Foxboro Instruments. You'll not only be served by competent, factory-trained personnel, using genuine Foxboro parts and methods; you'll also save substantially over non-contract service. Supervision of instrument installation is also available where needed.

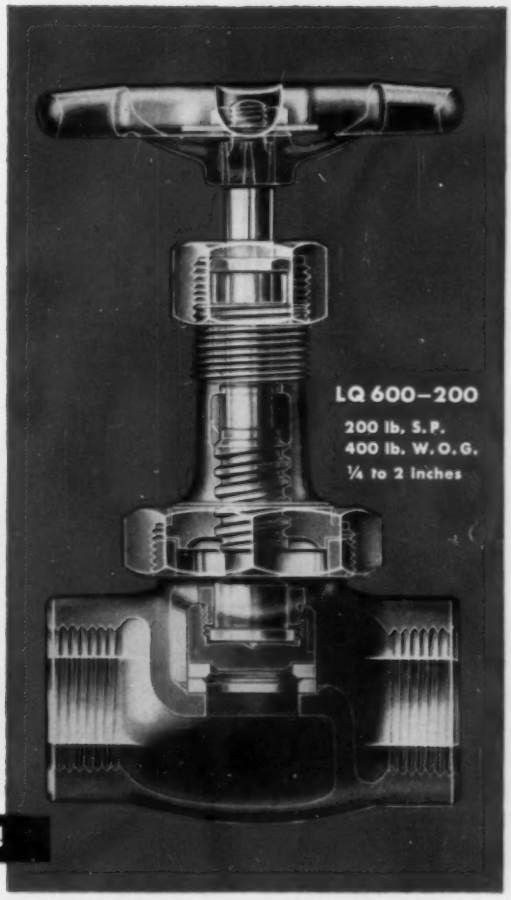
Don't wait until you're in trouble when it's so easy to prevent it. Let us recommend a *preventive* maintenance schedule for your plant now. Ask your Foxboro Field Engineer, or write for information today. **The Foxboro Company, 845 Neponset Ave., Foxboro, Mass., U.S.A.**

FOXBORO
REG. U. S. PAT OFF.

SCHEDULED MAINTENANCE SERVICE

Lunkenheimer Announces

ANOTHER GREAT NEW LQ600 VALVE



200 Lb. S.P.! 400 Lb. W.O.G.!

Lunkenheimer's famous LQ600, the Bronze Globe Valve that set a new high standard of performance on 150 lb. service, is now available for 200 lb. S.P., 400 lb. W.O.G. applications. The new line features the same long-wearing flat seats and discs made of Brinalloy®, plus a body and bonnet of Lunkenheimer's amazingly strong S-1 Bronze for higher-pressure service. Install this great new LQ600 Valve on your 200-lb. pressure lines—including all your toughest services—and compare its performance with other valves. It's built to eliminate maintenance costs because there is no replacement of seats and discs—they are patented Brinalloy, brazed in to stay, harder all the way through and more resistant to wear and corrosion than 500 Brinell Stainless Steel and far exceeding the wear resistance of 1000 Brinell case-hardened Stainless Steel.

LUNKENHEIMER QUALITY

Now there are *TWO* LQ 600 Valve Lines

The original LQ600 Valve for 150 lb. S.P., 300 lb. W.O.G. service has received the fastest acceptance of any valve introduced in years. Thousands of these valves are in service—some as long as five years—without a single reported case of failure or leakage.

FOR COMPLETE INFORMATION WRITE....

The Lunkenheimer Company, Box 360, Cincinnati 14, Ohio, or get in touch with your Lunkenheimer Distributor.

BRONZE • IRON • STEEL • PVC

LUNKENHEIMER®

THE ONE *Great* NAME IN VALVES

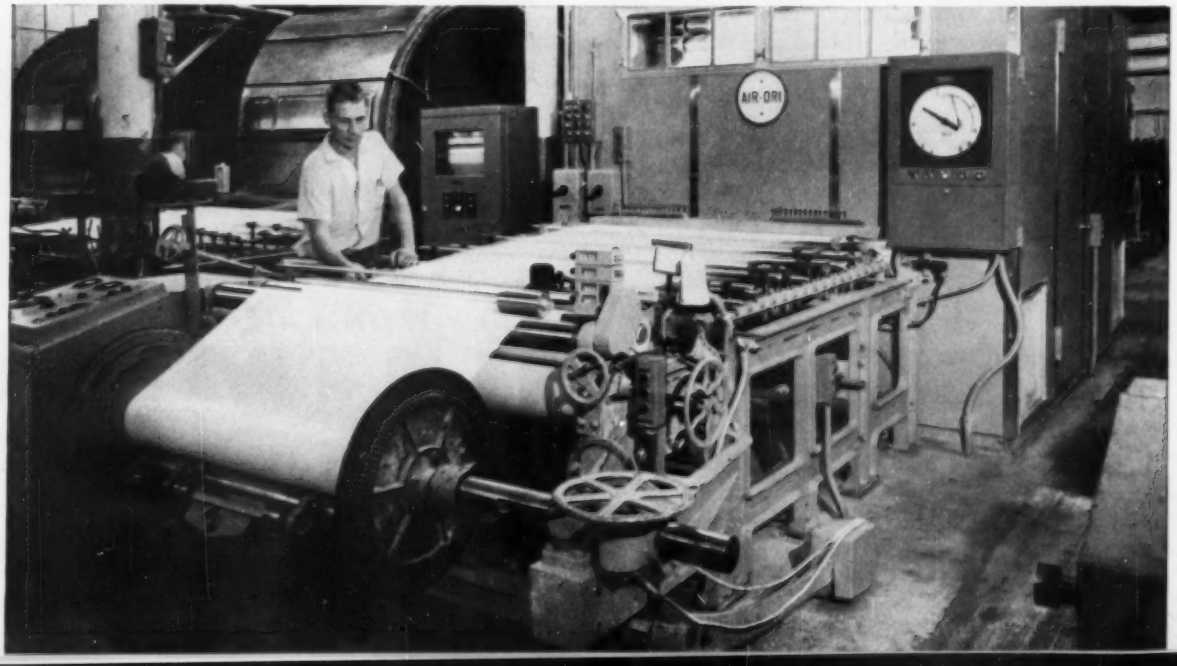
L-256-27

CONSTANT YARN TENSION IS MAINTAINED AUTOMATICALLY from empty to full beam by means of the amplistat tension regulator. Conveniently located creep-speed rheostat permits operator to set creep speed to the desired value without calling for the electrician regardless of changes in yarn, creel beams and tensions which might affect speed. Above is the

New slasher and GENERAL ELECTRIC DRIVE combination help

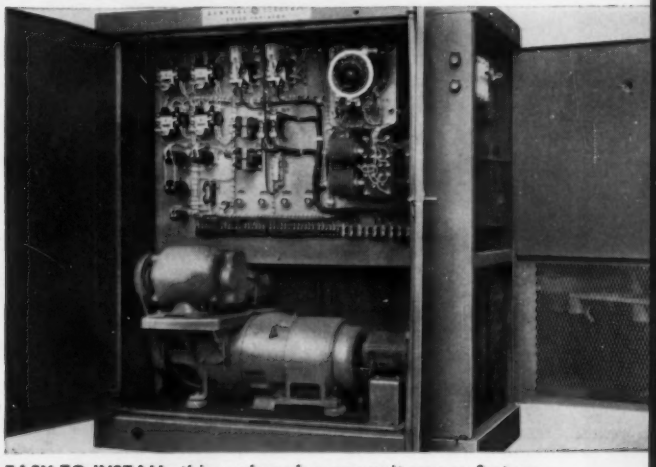
Springs Cotton Mills Reach Output

MAXIMUM SPEED OPERATION, consistent with the drying rate, is made possible by automatic operation with a moisture controller. Springs Mills operators report the drive is very easy to run and less complicated than other slasher drives.



creel end of the new G-E Speed Variator slasher drive installed at Springs Cotton Mills, Kershaw Plant. The amplistat eliminates "feel" and guesswork, assures smooth operation.

MAIN BEAMER DRIVE MOTOR for new slasher is rated at 5 horsepower. A booster generator gives extra power to the beamer motor to assure good performance at low speed and acceleration without change in yarn tension.



EASY TO INSTALL, this packaged power unit comes factory-assembled, wired and tested, needs only to be bolted down and connected to the drive motors.

Figures of 50% More Yards per Minute

At the Kershaw, South Carolina Plant of Springs Cotton Mills a new slasher and G-E amplistat-controlled drive combination has helped Springs reach output figures of 50% more yards per minute. Amplistat tension control in the new Speed Variator drive maintains constant yarn tension from empty to full beam. The result is a greater amount of yarn wound on each beam. Handling and loom down-time for changing beams are reduced . . . production increased.

SMOOTH, STEADY OPERATION—Springs Cotton Mills reports drive is very simple and easy to operate. A dial setting provides for stepless adjustment of beaming tension over a wide range to suit yarn sizes and number of ends. The amplistat maintains settings automatically. It eliminates "feel" and guesswork, assures steady, smooth handling of material.

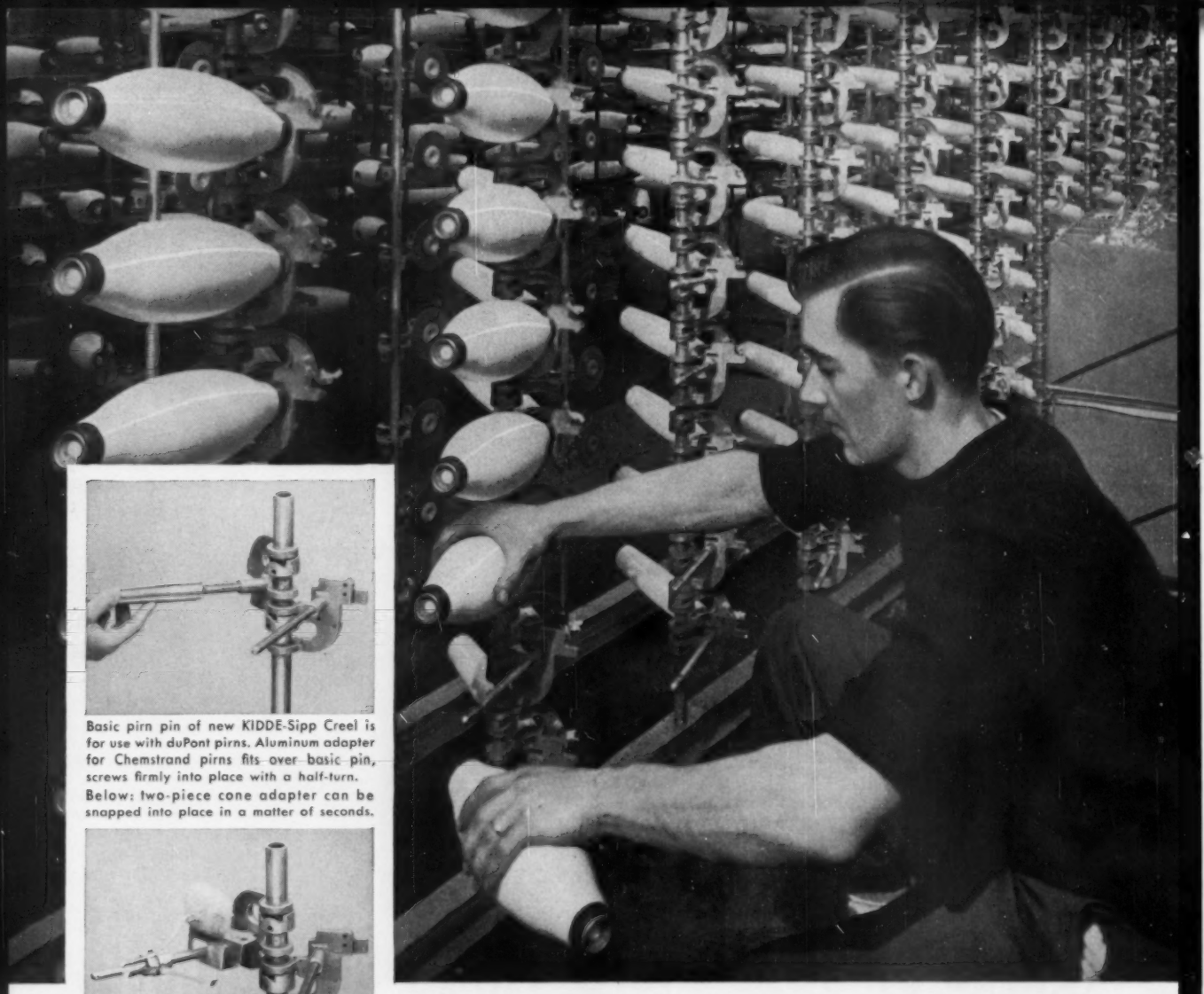
MINIMUM MAINTENANCE The amplistat, a static magnetic amplifier, has no moving parts and is built for rugged, long-life service. The power unit is protected by glass fiber filters and a positive-pressurized cabinet which forces air leakage in an outward direction. Unit is kept virtually lint and dirt-free. As a result, maintenance is low.

COMPACT POWER UNIT Already assembled, wired and tested, the compact Speed Variator power unit houses the m-g set, controls and panel-mounted amplistat. It needs only to be bolted down and connected to the drive motors. No special mounting bases or foundations are required. The unit may be moved easily to meet conversion or expansion.

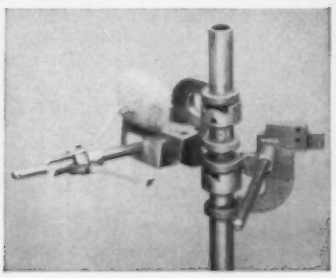
HOW YOU BENEFIT A G-E specialist will be glad to show how your plant may benefit from this new drive. Contact the nearest G-E apparatus sales office or write for bulletin GEA-6368. *Direct Current Motor and Generator Department, General Electric Co., Erie, Pennsylvania.* 819-1

Progress Is Our Most Important Product

GENERAL ELECTRIC



Basic pirn pin of new KIDDE-Sipp Creel is for use with duPont pirns. Aluminum adapter for Chemstrand pirns fits over basic pin, screws firmly into place with a half-turn. Below: two-piece cone adapter can be snapped into place in a matter of seconds.



Starting Point for Good Warps

NEW, IMPROVED KIDDE-SIPP CREEL

To help you make better warps . . . and to make your warping more versatile, KIDDE-Sipp creels have been completely redesigned. Package holder arms are much stronger. Adapters are more rigid. Even the heaviest packages will not sag out of alignment.

Basic creels are fitted with pirn holders for the 12" duPont pirn. Adapters for Chemstrand pirns, or for cones, spools and tubes can be added and fastened securely. Change-overs are easy and quick.

The new creels have plated pins with aluminum arms and adapters. Painting is eliminated . . . no rust can get on your yarn.

KIDDE-Sipp creels are available with inside, outside or vertical yarn delivery . . . with washer, post, or pulley tensions and with Kidde tension compensators. All are available with stop motions and with annunciator lights if desired. Write for further information to . . .

TRICOT AND RASCHEL MACHINES • TRICOT WARPERS • HORIZONTAL WARPERS
BEAMERS • CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS

Kidde

MANUFACTURING CO., INC. — 42 FARRAND STREET — BLOOMFIELD, NEW JERSEY

SOUTHERN OFFICE — 267 W. MAIN ST., GASTONIA, N. C.

The word KIDDE is the trademark of Walter Kidde & Company, Inc., and its affiliated companies.

To help you sell the extra protection of fabrics treated with "X-12" FLAME RETARDANT

THIS IS ONE OF A SERIES of Du Pont ads appearing in National Safety News emphasizing the importance of work clothes treated with flame retardant.

TIE IN YOUR PROMOTION of treated work clothes. Here is an excellent start. Capitalize by using and featuring Du Pont "X-12" Renewable-Type Flame Retardant.

Wherever fire hazards are present . . .

Work clothes treated with "X-12" FLAME RETARDANT give better protection . . . more comfort . . . longer wear

ONLY FIRE CAN TELL THE DIFFERENCE between treated and untreated clothing when "X-12" is used. That's because there is no loss of tensile strength, hand, color or texture.

"X-12" penetrates the fabric completely, gives maximum protection against flame and afterglow. Since "X-12" doesn't seal the pores of work clothing, you get this protection without sacrificing the workers' comfort.

Either industrial or commercial laundries can apply "X-12" in an economical, one-step operation. And being a renewable-type flame retardant, it is reapplied after each washing.

USE THE COUPON BELOW FOR FURTHER INFORMATION.

E. I. du Pont de Nemours & Co. (Inc.)
Grasselli Chemicals Dept., Room N-2539
Wilmington 98, Delaware

☐ Please send me your booklet on "X-12"
☐ Send me a list of commercial treaters in my area who apply "X-12"

Name_____
Firm_____
Address_____ Zone_____
City_____
State_____

DU PONT "X-12" Renewable-Type FLAME RETARDANT

DU PONT
REG. U. S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

GET ALL THE FACTS ABOUT "X-12" . . . In addition to workmen's clothes, "X-12" can be applied to curtains, bedspreads, rugs, upholstery, etc. Send for our informative brochure describing its many commercial and industrial uses . . . timesaving benefits in processing . . . and methods of application. For your free copy, clip coupon.

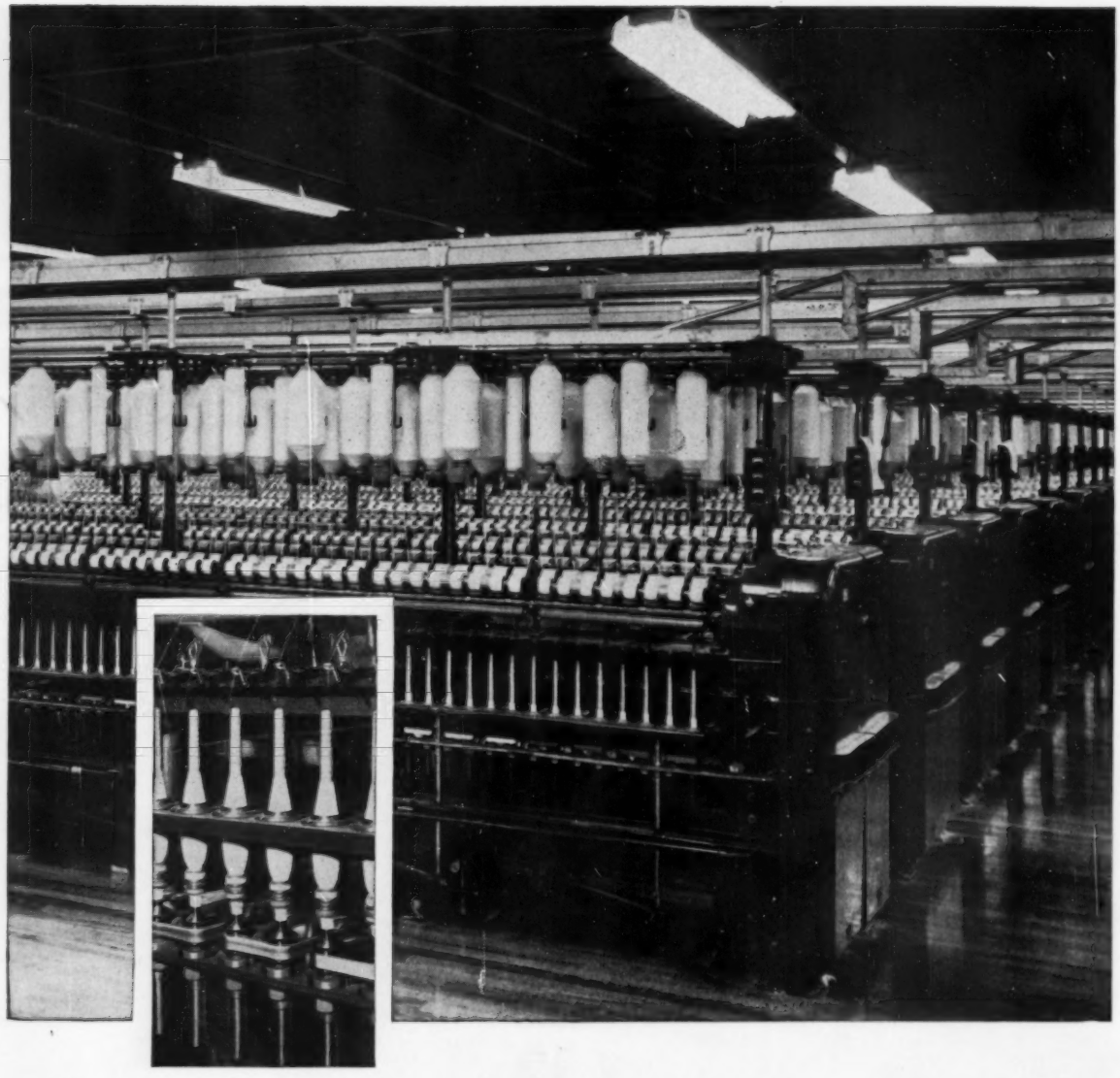
DU PONT
REG. U. S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

E. I. du Pont de Nemours & Co. (Inc.)
Grasselli Chemicals Dept., Rm. N-2539, TW-5, Wilmington 98, Del.

Gentlemen:
☐ Please send me your booklet on "X-12"
☐ I am now equipped to treat with "X-12"

*Name*_____
*Firm*_____
*Address*_____
*City*_____ *Zone*_____ *State*_____

For more information, write direct or use Reader-Service post card.



Marquette TOP DRIVE FILLING SPINDLES
increase production 15% to 18%

The above photographs show a typical installation of the new Marquette Top Drive Filling Spindles, with hardened steel blade and exclusive full-floating foot-step bearing.

Marquette Roller Bearing Spindles are giving excellent results in many mills. Among their advantages are higher spindle and front roll speeds, low ends down, savings in doffing, savings in the weave room, and savings in power and maintenance.

Marquette Roller Bearing Spindles can produce more yarn at lower cost in *your* mill. We'll be glad to prove this through a test installation. Contact our home office or one of our representatives.

Representatives: WILLIAM P. RUSSELL, BOX 778, ATLANTA, GA.
C. H. WHITE, MOUNT HOLLY RD., ROUTE 6, CHARLOTTE, N. C.
R. MICHAEL TURNER, 100 CHESTNUT STREET, CLINTON, S. C.

MARQUETTE METAL PRODUCTS DIVISION
CURTISS-WRIGHT CORPORATION • CLEVELAND 10, OHIO

Other Marquette Products: SPRING CLUTCHES
HYDRAULIC GOVERNORS • AIRCRAFT WINDSHIELD WIPERS
ROTARY OIL PUMPS • PRECISION PARTS AND ASSEMBLIES

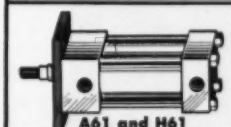
over 8,000 Different Cylinder SELECTIONS—

Miller AIR AND HYDRAULIC CYLINDERS AND BOOSTERS "IN STOCK" for immediate delivery...

See Miller Bulletins A-105K (Air) and H-104K (Hydraulic) for Complete Dimensions and Engineering Data on these "in-stock" sizes and other Custom Miller Cylinders in bores up to 20" and strokes up to 22 feet.

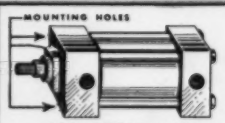
"IN-STOCK" MODELS

"A" Signifies Miller 200 psi Air Cylinders; "H", 2000 psi Hydraulic Cylinders. Interchangeable Mountings Are Shown In Red On Drawings.

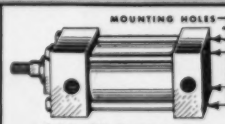


A61 and H61
Flange Mounting on Rod End
(A61 not available in 8" bore)

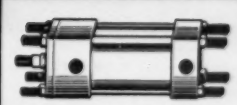
A62 and H62
Flange Mounting on Cap End
(A62 not available in 8" bore)



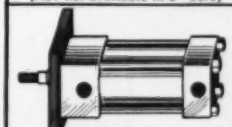
A63—8" Bore only
Flange Mounting on Rod End



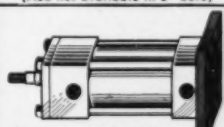
A64—8" Bore only
Flange Mounting on Cap End



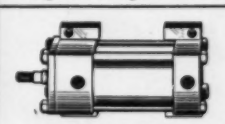
A50 & H50—Tie Rods not extended beyond nuts.
A51 & H51—Tie Rods extended both ends (shown).
A52 & H52—Tie Rods extended. Cap End only.
A53 & H53—Tie Rods Extended. Rod End only.
A54 & H54—Two Tie Rods extended at both ends.



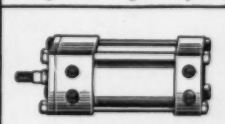
H65—Hydraulic Only
Flange Mounting on Rod End



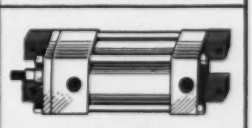
H66—Hydraulic Only
Flange Mounting on Cap End



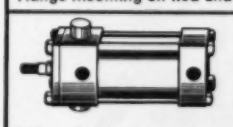
A72 and H72
Side Lug Mounting



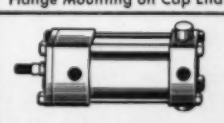
A74 and H74
Side Flush Mounting



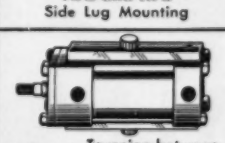
A77 and H77
Side or Foot Mounting



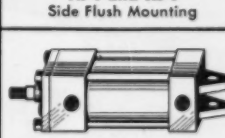
A81 and H81 Trunnion Mounting on Rod End



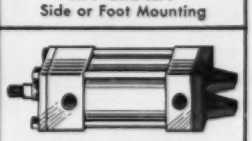
A82 and H82 Trunnion Mounting on Cap End



A83 and H83 Trunnion between Head and Cap
(one week delivery)



A84 and H84
Pivot Mounting



A86 and H86
Pivot Mounting

IN STOCK BORES In Inches

"IN-STOCK" STROKES (in Inches)

	BORES	ROD DIA.	ROD TURN DOWN & THREADS		Strokes
AIR	1½	⅝"	7/16-20	Cushioned	3 4 5 6 7 8 9 10 11 12
				Non-Cush.	1 2 3 4 5 6 7 8 9 10 11 12
	2	⅝"	7/16-20	Cushioned	3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
				Non-Cush.	1 2 3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
	2½	⅝"	7/16-20	Cushioned	3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
				Non-Cush.	1 2 3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
	3¼	1"	¾-16	Cushioned	3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
				Non-Cush.	1 2 3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
	4	1"	¾-16	Cushioned	3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
				Non-Cush.	1 2 3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
	5	1"	¾-16	Cushioned	3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
				Non-Cush.	1 2 3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
	6	1⅜"	1-14	Cushioned	3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
				Non-Cush.	1 2 3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
	8	1⅜"	1-14	Cushioned	3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
				Non-Cush.	1 2 3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
HYDRAULIC	1½	⅝"	7/16-20	Cushioned	3 4 5 6 7 8 9 10 11 12
				Non-Cush.	1 2 3 4 5 6 7 8 9 10 11 12
	2	1"	¾-16	Cushioned	3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
				Non-Cush.	1 2 3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
	2½	1"	¾-16	Cushioned	3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
				Non-Cush.	1 2 3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
	3¼	1⅜"	1-14	Cushioned	3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
				Non-Cush.	1 2 3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
	4	1¾"	1¼-12	Cushioned	3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
				Non-Cush.	1 2 3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
	5	2"	1½-12	Cushioned	3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36
				Non-Cush.	1 2 3 4 5 6 7 8 9 10 11 12 14 16 18 20 22 24 28 32 36

① "A" and "H" Models 82, 84 and 86 with strokes over 18" require stop tubes.

Column strength requires larger diameter piston rods for the following:

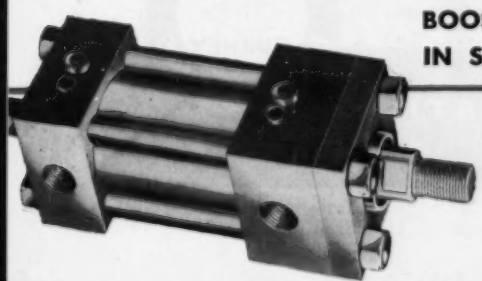
Air Cylinder Models A82, 84, and 86 with strokes inside area (1), when operated at 100 psi and over;

All hydraulic models with strokes inside area (2) and Models H82, 84, and 86 with strokes in area (4), when operated at 2000 psi and over;

Models H82, 84 and 86 with strokes inside area (3), when operated at 1000 psi and over.

Depending upon Trunnion Pin location, "A" and "H" Models 83 with standard diameter piston rods can have longer strokes than Models 82, 84 and 86.

See Miller File #251 for oversize piston rod and stop tube requirements.



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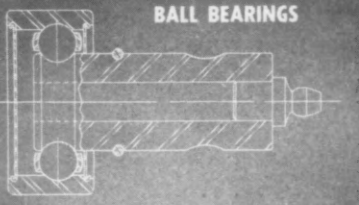

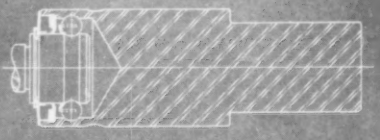

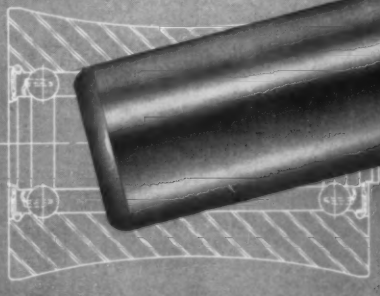

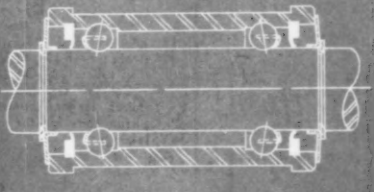

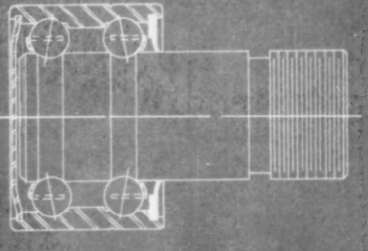

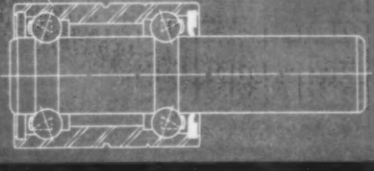

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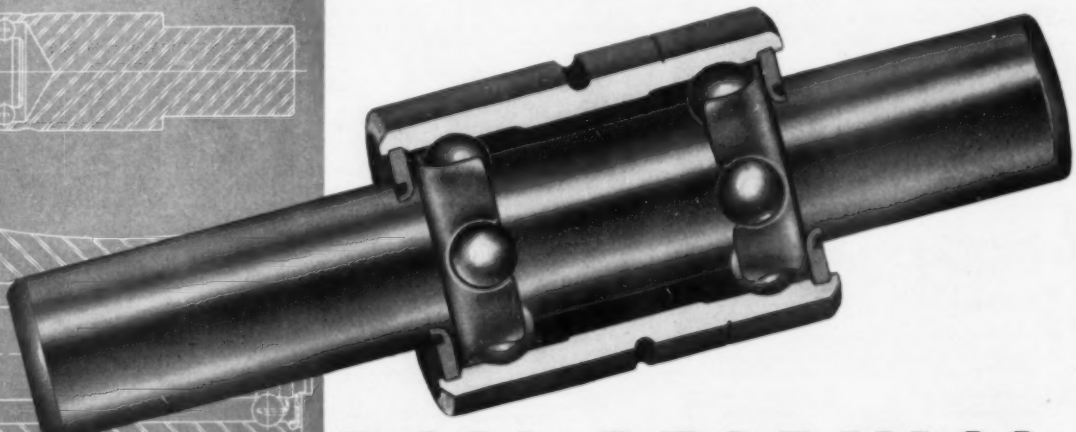

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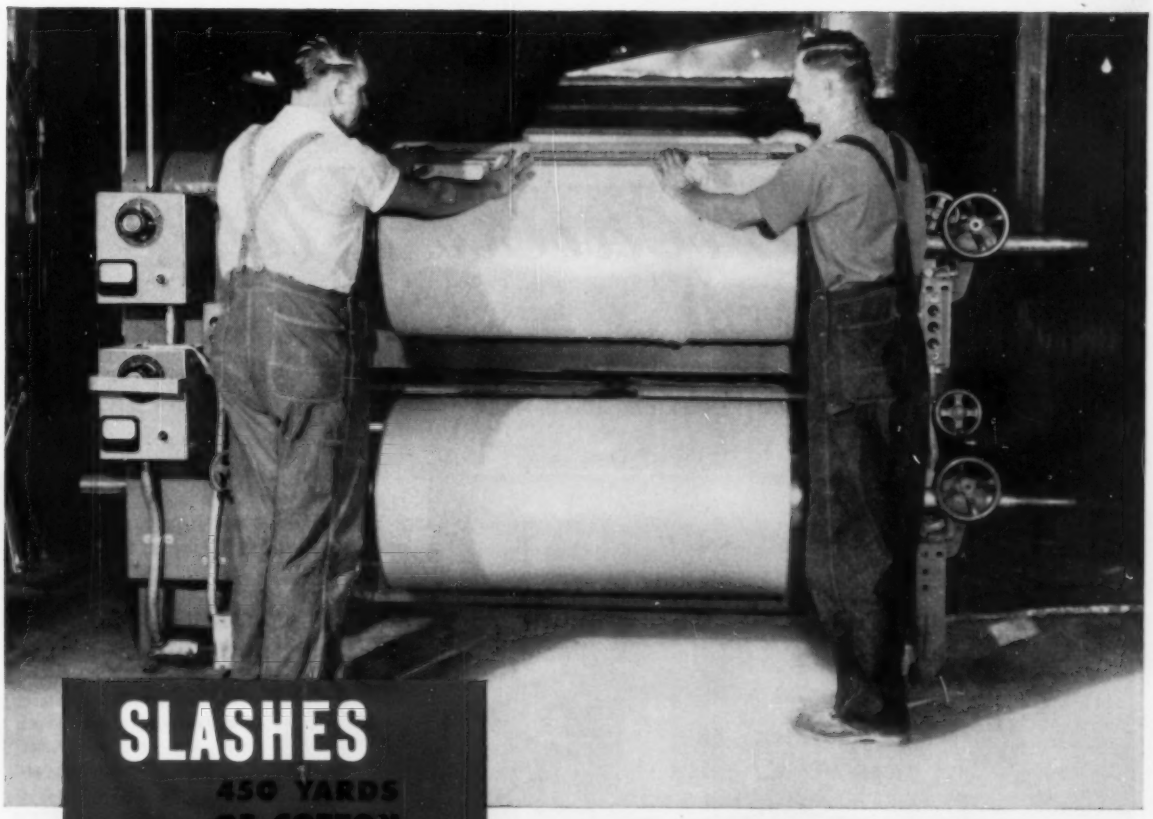

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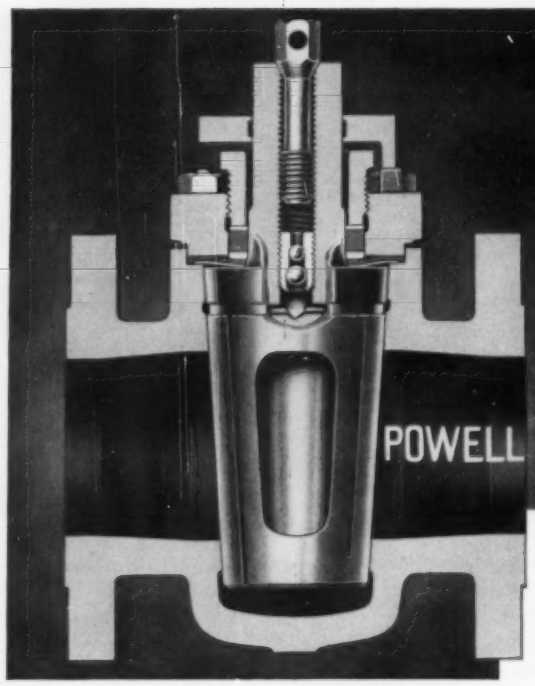

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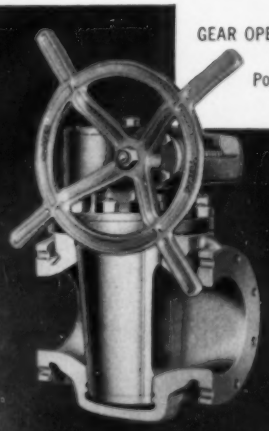

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The LONG-RANGE VIEW

Where Supervisors Fail

Probably no mill man in the whole textile industry would say that he has a "closed mind." In this age of science, with the results of experiment and invention on every hand, everyone prides himself on being modern, in tune with the times, open-minded to change and progress.

Yet a forum of superintendents told us the other day [see p. 91] that one of the greatest drawbacks with overseers is their lack of an open mind.

In that forum it was brought out that the qualities and skills needed for success by an overseer are also needed by every key mill man. As one superintendent put it, "Everybody in a manager's position, all the way down to the section man with the least authority, must possess most of these qualities."

If there are certain positive qualities every supervisor needs and certain negative qualities that are drawbacks to overseers, it is safe to say that these drawbacks are not limited to overseers but apply equally to superintendents, management, second hands, and section men. Therefore, it seems reasonable to say that one of the big drawbacks all mill men have is the closed mind that nearly all men vehemently deny.

What Is Closed-Mindedness?

If this drawback is so serious and so widespread, it might be well to explore it a little.

The superintendents' forum more or less defined a closed mind in a mill man as an unwillingness to seek out and try new things and new ways of doing old things. Stated another way, it means resisting change. It means clinging to old ways and old techniques of doing things, even supervising people. In a word, it means, "I've done all right the way things are and the way I am, and I don't want to change."

And, of course, what that means is, "I don't want to make progress."

That sounds ridiculous. Everyone wants to get ahead, make more money, drive a bigger, shinier car, live in a finer house, have more money to blow, etc. The trouble is that most people want those things only if they can have them without changing their way of looking at things and doing things. In other words, they want them providing they can have them and still keep their minds closed.

Asked why overseers have closed minds, the superintendents summed up the reason as fear.

Every supervisor has been successful to an extent. He has developed techniques that have raised him to a given level—section man, second hand, overseer, superintendent, manager, vice president in charge of production. To ask him to change those techniques, to improve them, to give them up for something better is to snatch the ground from under him. And he is afraid. Therefore, he resists.

What Can Be Done?

A majority of supervisors will say that they would like to have training in supervisory skills. Probably a majority of them are just talking; most supervisors have the notion that they are by nature real experts and have no need for training of any kind.

Many supervisors get training of one kind or another, usually either technical training or training in how to handle people. That's all very good, undoubtedly worth the time and effort. But apparently what is needed by most mill men is not training but a shaking up of their closed minds.

A fact that might be worth remembering is this: we really don't do much thinking. What we take for thinking is usually nothing more than feelings we become conscious of. Most of these feelings (thinking) hinge around our sense of personal importance. If a thing makes us feel important and successful, we say it's good. If it doesn't, it's bad.

So the next time you feel resistant to something about the job, the next time you think everything's dandy and you don't need to beat your brains out to find a better way, the next time you're tempted to say a thing is no good or it won't work, why not take a few minutes out and do some real thinking—about you?

Chances are very good that you have clamped your mind shut like a steel trap. Why? Because you're scared. Because you think the new thing is not going to oil up your ego. Because you think (feel) it might be a reflection on what you've done in the past, or a denial of your supreme importance now, or a threat to your success in the future.

If a closed mind is a serious and widespread drawback, any time, effort, and agony spent in jarring it open is a real investment toward greater success.

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THE SHORTAGE OF SCIENTISTS AND ENGINEERS:

How Critical Is It?

The United States is running into a serious shortage of scientists and engineers. There is no novelty in this observation. It has often been made in the last few years. And there has been mounting alarm about what this shortage may mean for both our national security and our prosperity.

There would be great novelty, however, if general agreement were attained on such important matters as the size of the shortage, the extent of the damage it threatens to inflict, and the best ways to eliminate it. The purpose of these editorials is not to provide this novelty, but to ventilate some of the key aspects of the shortage of scientists and engineers.

This first editorial in the series is designed to throw light on the over-all dimensions of the shortage. Others to follow will be addressed to such questions as:

- How serious is the threat to our economic well-being and to our national security?
- What needs to be done to prevent the shortage from becoming critical?

Rise Has Been Rapid

The problem is *not* that we have been producing a small number of engineers and scientists. Indeed, the number has risen sharply. We now have a working force of more than 600,000 engineers, over twice as many as the 286,000 there were in 1940. And we have about 250,000 scientists (chemists, physicists, biologists, geologists, mathematicians, etc.), compared to only 92,000 in 1940. About one in 148 persons in the labor force of 1940 was a scientist or engineer; today the ratio is about one in every 80.

In research and development work, where highly creative scientific minds are required, there has been fully as rapid a rise in employment of scientists and engineers. Fewer than 90,000 were employed in research and development fifteen years ago; the total now exceeds 200,000.

—But Not Rapid Enough

Despite this rapid increase in the number of scientists and engineers—at a rate much faster than the increase in the labor force as a whole—the needs of industry, government and education for technically trained people have risen even more sharply.

The principal reason for this mounting demand is the prodigious growth of research in the last 15 years. From a total of only about $900 million spent on all types of research in 1941, the annual expenditure rose to over $5 billion by 1953 (the latest estimate available). Over two-thirds of the research is done by private industry, mostly to develop new and better products and to find new and better methods of production. Most of the rest is performed by the government, largely to develop improved and inevitably more complex scientific weapons.

One aircraft company has found from its own experience that it required 17,000 engineering manhours to develop a typical fighter plane in 1940. The requirement is now about 1.4 million engineering manhours. Development of the typical fighter plane of 1960 will require well over 2 million engineering manhours.

In this dramatic example, the need for engineering services for a basic piece of military equipment soared 80 times in 15 years. It is an indication of why the demand for more and more technically trained men and women has outstripped even the imposing increase in scientific and engineering manpower of the last decade and a half.

Size of the Gap

Exactly how great the gap is between the available supply of scientists and engineers and the number required, it is impossible to say. In some instances technical talent undoubtedly could be better used than it is now. And part of the shortage might "disappear" if higher salaries had to be paid. (These questions will be discussed in later editorials.) But informed estimates of the approximate size of the gap can be given.

- According to the best available information, from estimates by the Engineers' Joint Council and the U. S. Bureau of Labor Statistics, **the minimum need for engineers from graduating classes is 40,000 each year for the next ten years.** Last year we graduated only 23,000 engineers, just about enough to cover replacement needs without allowing for any expansion of the number of active engineers. Projections made by the U. S. Office of Education indicate that we shall probably not have a class of 40,000—the *current* annual requirement —until 1963.
- According to Dr. Howard Meyerhoff, executive director of the Scientific Manpower Commission, **there is now a shortage of about 20,000 scientists.** Last year the number of doctoral degrees in the natural sciences, almost a prerequisite for research work, was only 5,000. Dr. Meyerhoff estimates that the shortage of scientists will rise another 30,000 by 1960.

More Needed As Teachers

Not all of the graduates with scientific and engineering training, furthermore, will work as scientists and engineers—that is, by performing research and giving it practical application. Such training is now necessary in many sales and management positions. And more of our technically trained men and women must remain in educational institutions as teachers if the quality of engineering and scientific education is to be maintained. A survey in 1954-55 by the National Education Association showed that, out of 277 universities, state colleges and large private colleges, nearly one-third *already* had unfilled vacancies in engineering and three-fourths had vacancies in physical sciences.

The dimensions of the shortage of scientists and engineers can be summarized as follows: **Despite a substantial rise in the trained manpower available, the needs of industry, the government and education have risen still faster. The best information indicates that, on the basis of current and anticipated needs, our recent yearly rates of production of slightly over 20,000 engineers and about 5,000 PhD's in natural sciences could be doubled without closing the gap entirely.**

The disturbing implications of this shortage for our national security and our prosperity and some practical suggestions for eliminating it will be the subjects of subsequent editorials in this series.

This is one of a series of editorials prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nationwide developments of particular concern to the business and professional community served by our industrial and technical publications.

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Donald C. McGraw

PRESIDENT

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TEXTILE WORLD'S FORUM Discusses—

What SUPERINTENDENTS Expect of OVERSEERS

- What qualifications do overseers need to be successful?
- What traits of character and personality are indispensable?
- What failures are most often encountered?

To get answers to these questions, TEXTILE WORLD arranged a forum at which a small group of successful mill superintendents discussed these questions for publication. Four superintendents took part.

Here, from their experience in dealing with overseers day by day, are their answers.

Overseers Need These Qualities

TEXTILE WORLD: What qualifications do you like your overseers to have?

SUPT. A: Personality is one of the qualities that would be high on my list. It might not necessarily be first, as though it were the most important of all qualities. But I like for my overseers to have a strong personality and to be able to project it either down to the employee level or up to whatever level is required.

I think a man with the right personality for the job can possibly overcome a lot of shortcomings he might have in, we'll say, ability. He should be able to issue orders in a pleasing way and have them received in a pleasing manner.

TEXTILE WORLD: Could you explain a little more fully just what you mean by a pleasing and forceful personality?

SUPT. A: Well, an overseer can be sympathetic only to a certain degree. He will meet resistance by a lot of workers in anything he wants to do or any trials he wants to make. If he is too sympathetic with the worker, he'll never be able to get across what he is trying to do. So he has to be forceful enough to accomplish whatever he's trying to do and still be sympathetic and pleasant enough to gain and hold the confidence and respect of his workers.

TEXTILE WORLD: What other qualities would you say overseers need?

SUPT. A: I like for an overseer to be ambitious and to have a desire to experiment and come up with new ideas and new methods.

And I would like a man to have character that is beyond reproach. He should be the sort of man who can be an example to others.

In ability, I would expect an overseer to be able to do routine calcu-

lations, to set up standards of quality, and to be able to speak fairly well in such circumstances as plant safety meetings.

In general, he should be able to carry out his duties with tact, understanding, good common horsesense, and just plain old human kindness.

TEXTILE WORLD: You hear a lot about studying workers to get to know all you can about them—what makes them tick, whether little Johnny stumped his toe yesterday, etc. What do you think of that?

SUPT. A: It would be hard for me to decide on the degree to which an overseer should study his people, but certainly he should know such things as, for example, John Smith has a bad heart. John might be able to work well for eight hours but shouldn't be asked to put in overtime.

Or another example: A man who is regular in attendance may be expecting a baby or may have sickness at home; he may have to be absent at any time. The overseer should know about such real conditions that may affect a person's work.

TEXTILE WORLD: But you wouldn't recommend that an overseer try to be an amateur psychiatrist?

SUPT. A: Oh, no.

TEXTILE WORLD: You think then that if he tries to dig too deep into the personalities and motives of workers he's heading for trouble?

SUPT. A: He should keep it in generalities, not get nosey at all.

TEXTILE WORLD: What other qualities should an overseer have?

SUPT. B: First on my list is that an overseer should be morally clean.

He should have the good personality just discussed.

He should be both technically and practically trained. I wouldn't want to take a man right out of school and try to make an overseer of him. He'd have to have practical training.

He must like people. If he doesn't, he certainly is not going to get along with them.

He must have the ability to train the people who are working with him.

He must know how to delegate responsibility to others.

He must have the knack or know-how to follow up and see that his training and instructions are carried out.

He must remember that he gets results through other people. Now, his results and his success are going to stem from his ability to train people, get along with people, and get them to want to do the job. Unless he is able to do those things, his knowledge doesn't mean much.

Given all these qualities, an overseer must get quality and production, keep waste at a minimum, keep costs down, be safety-minded, and do a good housekeeping job.

Above all else, he must have faith in himself. If he doesn't, he's whipped to start with.

And he must love his vocation and the industry he's working in.

I once heard a famous educator say that a man who knows how to live with other people correctly is an educated man and a man is not educated until he does know how to live with other people. So I would sum this up by saying that a successful overseer is a man who first gets along with people.

SUPT. C: I was just thinking that what you've said applies to all supervisors, from the mill manager right on down to the last section man on the third shift.

TEXTILE WORLD: Would you say that these are the qualities that lead to promotion?

SUPT. C: Well, everybody in a manager's position, all the way down to the section man with the least authority, must possess most of these qualities. Of course, you pick any overseer you want and list his qualities, and he'll be short in some of them. You'll be short in some of them yourself. But anybody who might have all of them would really be on his way.

TEXTILE WORLD: Would you say that the more of these qualities a man has the further he will go in the textile business?

SUPT. C: Yes. I think that in different plants and different locations the order of importance of these qualities would be different.

TEXTILE WORLD: Are there any qualities you would add?

SUPT. C: Not general qualities such as we've been discussing. I think, though, that in most mills the overseer's job of keeping costs down would be emphasized more than we've emphasized it here.

A few years ago an overseer's No. 1 job was as a cost man. His most important function was to control costs. Then mills began to put in timestudy and standards departments. These departments took a lot of pressure off the overseer, but the overseer also let some of his responsibility go.

A lot of mills found that this kind of operation was a mistake. By the time costs got down to the overseer, they were out of line on one side or the other. So the trend now is to make the general overseer the biggest cost man in the mill again. The timestudy and standards departments provide him with information for his use, but it is his responsibility to control costs.

TEXTILE WORLD: Would you specify any other qualities?

SUPT. C: Yes. I'd add enthusiasm. We've got one overseer I'd say is of average ability all the way through. He gets along with people fairly well, and his technical knowledge is only fair. But that rascal's got more enthusiasm and interest than anybody I know. When you get him to take hold of something, he carries it on from there.

He talks with his second hands and gets them enthused. He just has that ability. He comes as close to putting things across and getting things done as anybody I've ever seen.

You can't beat that. I'd say that he's one of our best overseers, if not the best.

TEXTILE WORLD: What other qualities can we add?

SUPT. D. Well, this perhaps is not a quality, but it's a very important condition for an overseer's success. I don't know of anything that's more important than the right kind of background at home. I suppose this is closely associated with good character, which has been mentioned.

Certainly from the overseer level up a man must have the absolute loyal understanding and support of his family. You might call it an understanding wife.

Every overseer gets involved in problems that wreck his normal schedule. He may get home late, miss meals, and be grouchy and tense without realizing it. An understanding family is an extremely important influence in helping him keep to a steady course.

TEXTILE WORLD: To sum up the qualities and qualifications an overseer needs, we could draw up the following list, without regard for relative importance of the different qualities:

1. A pleasant, forceful personality
2. Ambition
3. A desire to experiment and make improvements
4. Good moral character
5. Technical knowledge and ability
6. Tact, understanding, common sense, and kindness
7. Practical experience
8. A liking for people
9. Ability to train people
10. Ability to delegate responsibility
11. Ability to follow up
12. Ability to get results through other people
13. Ability to get the results required
14. Faith in himself
15. A liking for his work and his industry
16. Ability to live correctly with other people
17. Enthusiam
18. An understanding family

Overseers Have These Shortcomings

TEXTILE WORLD: Where do overseers fall short or fail most often?

SUPT. D. One of the greatest drawbacks I find is the need for an open mind. We live in a day that is a little different, I think, from the textile days of the past. Competition is more severe, and the gross return on the dollar invested must be greater if we show a profit. We're calling on people—supervisors and workers—to do things that a good many of them tell you can't be done. Others say they never heard of it being done. Still others say they're willing to try it.

The man at the head of a production department should have a mind open enough that he's willing to try new ideas, experiment with new methods, and try new techniques. Not only should he try them, he should really try to make them work—definitely prove or disprove them.

TEXTILE WORLD: Do you find that too many overseers either won't tackle new ideas or do it only half-heartedly?

SUPT. D. Yes. There are a lot of overseers who have been excellent men. They built up reputations over the years, and they have the confidence of the people who work for them. Many of them can run every job in their departments and can take a machine down and put it together again.

Many of these men learn to operate in a certain way, and they aren't ready enough to try a new way. They take the attitude: "Why, we've never done it that way," or they give some reason why it's impossible.

Overseers and superintendents today have got to be willing to try things that sound cockeyed. A lot of success is being built today on cockeyed ideas. And I know a lot of mill men who are getting the jump on others just because they are willing to try new ideas.

And I would list unwillingness to try new ideas as the No. 1 shortcoming of overseers today.

TEXTILE WORLD: That touches on what you [SUPT. A] said a little earlier.

SUPT. A: Yes, what I called ambition and the desire to learn and to come up with new ideas. I think that possibly this quality is where most overseers fail, if they do fail.

Most overseers get along with their people most of the time; most of them maintain reasonable quality in their departments; most of them are reasonably waste-conscious. But many of them stop there; they fail to reach out and get the little bit extra that makes a man outstanding.

Somebody somewhere is going to come up with a new idea. A lot of overseers are content to wait until somebody else comes up with it, tries it, and proves it. Then they can copy it or have it pushed on them.

A really good overseer would be reaching out all the time for new things, new ideas, new methods.

TEXTILE WORLD: What can be done to shake these sleeping beauties to life?

SUPT. C: You can't beat competition. Take our weave rooms. We have two: a box-loom job and a Draper-loom job. The overseers of these two rooms are competing with each other all the time.

TEXTILE WORLD: If you had only one overseer in each department, how could you use competition?

SUPT. C: Well, you could use departmental efficiency, for one thing. Or bad-work records, or the use of new ideas. If a superintendent put his mind to it, he'd find a dozen ways to make competitive comparisons.

SUPT. B: We try to train our men to be alert and open-minded, from section men right on up. For example, we encourage all our men to take a good trade paper, read it, and try to accumulate some good facts. We tell them that when the magazine comes in to take out the items in that issue that concern his department and put them in a loose-leaf folder under headings like quality, production, etc. In this way, he gets the point that we want him to be alert and open-minded and on the lookout for new ideas and helpful information.

One of the things I tell a man is that if he can keep the enthusiasm for the job after he's had it five years that he had the first day he went on the job, he'll make a success of it.

It's helpful to keep in front of him the importance of being enthusiastic about the job and being willing to make changes.

You've got to follow up and see if he's enthusiastic about his job. If you can't get him to take enough interest and pride in himself and the job, he's slipping. He's got to feel that it's a pleasure instead of a task to go to the mill.

In other words, he should feel that it's a new day and something new is going to happen at the mill—a new headache, if nothing else—a new challenge—a new problem to solve—a new opportunity.

It's hard to get that kind of enthusiasm over to a man; but unless an overseer has it, he's not a good overseer.

TEXTILE WORLD: What do you think causes this closed mind in overseers?

SUPT. D. I think it's fear, at least partly, although the man himself might not be willing to admit it. In fact, he might not even be aware that he is afraid.

A man who's learned to do something or to run a job in a certain way or who's grown up under a set of conditions may suddenly see more

changes take place than he's formerly seen in twenty years. And he may be afraid that he can't take on these new things and be as good in his job as he was. So, because he's afraid of it, he refuses to have any part of it, if he can get away with refusing.

To take an example: For years, a practical overseer sighted by his thumb in setting up a job. He came close most of the time, but not close enough. But he could explain to his people why they had a certain number of machines and why they did an operation in a certain way.

Now, along comes a squad of young squirts who don't know the hind end of a loom from the other end, but they do know stop watches and figures. If they're pretty good, they can set up a job within a close margin of what the worker can do and do reasonably. But it may be a far cry from what the worker has been doing.

And the overseer, who's had a lot of practical experience, is afraid he can't explain it to his people. Maybe the fact that he doesn't understand it himself is really the reason he's afraid of it.

But he doesn't admit that. Instead he brings up reasons why it won't work. That's one of the first things he thinks about: some way to explain why it won't work, or some way to talk himself out of having to do it.

Personally, I think that's one of the best ways to spot an overseer who's on his way out; he's the man who says, when you go to him with a new idea, "I don't think it will work."

The overseer who's going to stay around and maybe even get a promotion is the one who says, "I don't know, but we'll try it and see."

TEXTILE WORLD: Are there any other shortcomings of overseers that are fairly common?

SUPT. A: One, I think, is this thing you hear referred to loosely as "power of decision." A man who is afraid to make decisions and stand by them won't make many decisions. He may not make many mistakes, but he won't accomplish much, either.

An overseer needs to be able to weigh the facts that he has, look over the situation confronting him, and decide what he's going to do.

He shouldn't hesitate or try to avoid making decisions. The quicker and more gracefully he makes his decisions, the better man he's going to be because he clears the way to go on to something else.

TEXTILE WORLD: You [SUPT. B] started off by saying that an overseer should lead a moral life. Do you find that many slip on that score?

SUPT. B: It's really not so many, but every once in a while it happens, and you have to let him go. The people under him lose confidence in him.

SUPT. A: From my point of view, moral failure is the worst thing that can happen to an overseer. In all his other shortcomings, we can bring him along. But you can't give him a clean character and good morality. He has made his own decision there, and you can't do a thing about it.

Here's another point of importance. I like for an overseer to be able to say No and have people like it. There are too many overseers who say Yes too often. An overseer can get you in trouble by saying Yes too easily and too often.

TEXTILE WORLD: Someone said the overseer should be sympathetic. Is there a conflict in being sympathetic and saying No?

SUPT. A: Not necessarily. I want an overseer to be sympathetic as far as he can but to say No when he should say No. When he says No, of course I want him to explain why. But, again, he should not be overly sympathetic in giving his explanation.

TEXTILE WORLD: Which do you find to be the more common failing in overseers: too much sympathy or saying No without finesse?

SUPT. A: I'd say too much sympathy.

SUPT. D. I think I'd say too many overseers saying No without finesse, or as it appears to the worker, saying No without being considerate enough of the feelings of the people who work for him.

An overseer has certain authority, and he can use it without explaining his reasons if he wants to be that kind of overseer. But I think that the man who can explain what he wants, even if it is a case of saying No, has a far greater chance of getting it done and getting it done the way he wants it than the man who just tells his people what he wants.

TEXTILE WORLD: You think then that more overseers fail in this skill than fail by being too sympathetic with the people under them?

SUPT. D. I think so. We tell our men to talk with their people more. They listen;

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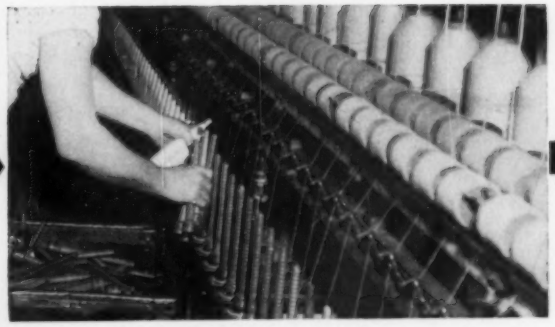
STOPPING THE FRAME and bearing down the rail is the first step in the doffing cycle. The time required is constant for all ring and package sizes.

Time: 0.7 mins.



DOFFING THE BOBBINS has a variable time factor that depends upon the yarn and ring size. Here are some examples:

Yarn number (warp)	22s	16s	10s	5s
Ring size (ins.)	2	2 1/4	2 1/2	3
Doffing time per bobbin (mins.)	0.023	0.026	0.029	0.033
Doffing time per 252-spindle frame (mins.)	**5.80**	**6.55**	**7.31**	**8.31**

An Easy Way To Adjust DOFFER JOBLOADS

• Here's an easy way to explain to your doffers why and how their jobloads may have to be changed when the mill varies its package sizes. The graphic-formula system is a positive approach to a ticklish personnel problem.

By MAL BOWDEN

DOFFER WORK ASSIGNMENT is one of the hottest problems faced today by mills changing package sizes. The problem is not helped any by the doffer himself. He is a skilled workman and difficult to replace. Consequently, he is a tough customer to sell on any proposal affecting his job conditions, jobload, pay, or conveniences.

Doffers are generally skeptical of new large-package frames because of the extra weight of the package. This skepticism can impede doffer relations, despite the fact that new frames work to the doffer's benefit by extending the doff cycle and improving the housekeeping and prosperity of the mill.

When different ring sizes are installed, the doffer problem can be solved only when the overseer and his assistants are able to convince the doffer that:

1. He is getting a fair increase in the time allowed for doffing the larger package.
2. When any detail on his job changes, he gets a proportionate and fair change in his workload.
3. The change is based on the mill's standard data applied consistently over a long period of time.

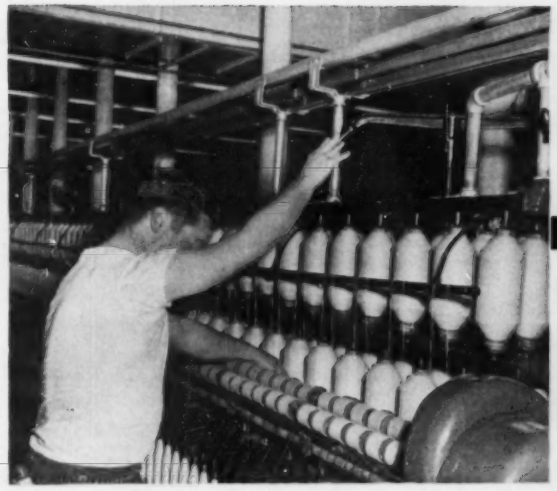
To accomplish these objectives and to effect jobload changes with minimum employee friction may require a major change in some of the common approaches to the problem. One of these obsolete approaches may be called the "number-in-a-hat" system. Here's how it works:

A doffer complains to the second hand about his new jobload. He doesn't get satisfaction; so he goes to the overseer. Now, regardless of how sincere the overseer may be in his desire to do a good employee-relations job, he may have only one bargaining weapon to use.

For example, the overseer goes to a disreputable filing system, pulls out a card, and shows it to the doffer. On the card, there is a row of statistics. These figures may state how many minutes the job requires or how much the doffer is paid. Maybe the number of frames that he's got to doff to make production is listed. These figures don't tell the "why and how"; they don't explain anything. To a confused doffer, the figures may as well be numbers in a hat.

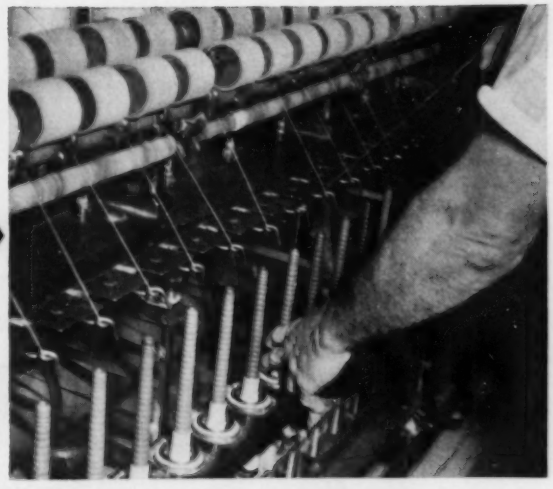
The weakness of such a system is that the overseer is provided with no means to sell the new work assignment. Statistics carry little punch as sales tools unless they are accompanied by tangible or graphic means that can be seen and readily understood or felt in the pocketbook.

A "graphic formula" to help the overseer sell work as-



STARTING THE FRAME takes slightly less time than stopping. This factor is a constant, based on the average time required to start 20 frames.

Time: 0.5 mins.



PIECING-UP TIME is considered a constant in the formula; but actually certain variables, such as yarn characteristics, can enter the picture.

Time: 1.8 mins.

signments can be worked out easily by combining pictures with data. By adding the constants and variables, the workload can be calculated for a given ring size very quickly. The process of obtaining the answer is vivid and largely self-explanatory. The graphic formula illustrated here emphasizes different-size package jobs, but other spinning-room doffing variables can be similarly worked into a formula.

How to Use the Formula

When the new work assignment is introduced, a copy of the graphic formula accompanies the usual statistical form and the formula is used by the overseer to explain the why and how. He also goes over the formula with his second hands and section men so that he alone will not have to carry the burden of selling the mill's new system. The formula gives all supervisors a better understanding of the facts behind doffer work assignments.

The most important detail of the formula is the time chart shown with Picture 2. This chart shows the mill's consistency and fairness in allowing proportionate doffing times for the various ring sizes in the room. The times are expressed in decimal-minutes per bobbin.

To arrive at these times, the doffer's speed in replacing full bobbins with empty bobbins is averaged over 10 to 20 frames. The average minutes per side doffed is divided by the number of spindles per side. The doffer timed for this standard is an average operator, neither the most skilled nor the least experienced.

Other details of the doffer's job include stopping the frame, starting the frame, piecing up, and dumping the yarn. Time for stopping the frame is averaged for 20 frames, and it does not vary for the different package sizes. This time, therefore, is a constant.

The same is true of starting, piecing up, and dumping, since the time required for these jobs does not vary with the ring or package size. However, it should be noted that the job of piecing up after doffing is actually a variable, dependent on yarn characteristics, twist, doffer skill, and other factors.

To sell work assignments based on package-size variations, the spinning-room supervisors should bear down

CONTINUED ON PAGE 141

DUMPING THE YARN takes less time in this mill than piecing up, but it may take longer in other mills where hauling distances are greater.

Time: 1.4 mins.

Total Time To Doff One Warp Frame

Yarn number	22s	16s	10s	5s
Time in minutes	**10.20**	**10.95**	**11.71**	**12.71**
Doffer assignments for 8-hr. shift				
Cleaning duties (hrs.)	2	2	2	2
Time available for doffing (hrs.)	6	6	6	6
Frames to be doffed in 6 hrs.	36	33	31	29
Frames assigned doffer	26	22	17	12

FRAME ASSIGNMENT is determined as shown in this example: On 22s warp running 5.8 hrs. per doff, each frame is doffed approximately 1.4 times per shift. Assignment is 36÷1.4=26 frames.

WELLMAN COMBING CORP.'S new plant at Johnsonville, S. C., is laid out so that grease wool enters the east end and the material flows smoothly through the plant to emerge as balled top at the west end.

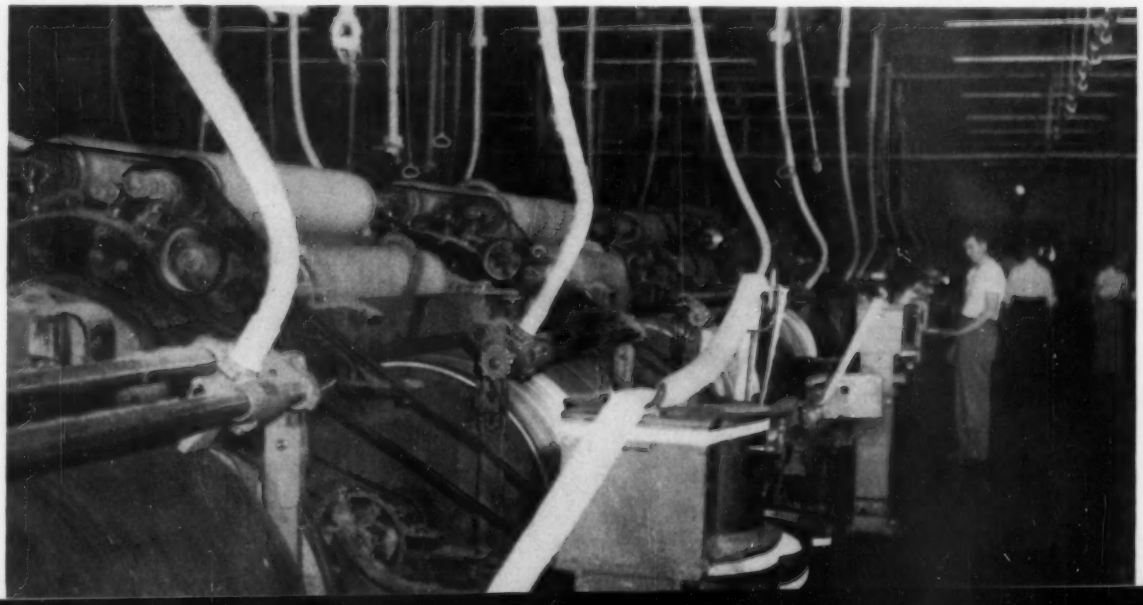
Wellman's New WOOL-COMBING *Plant*

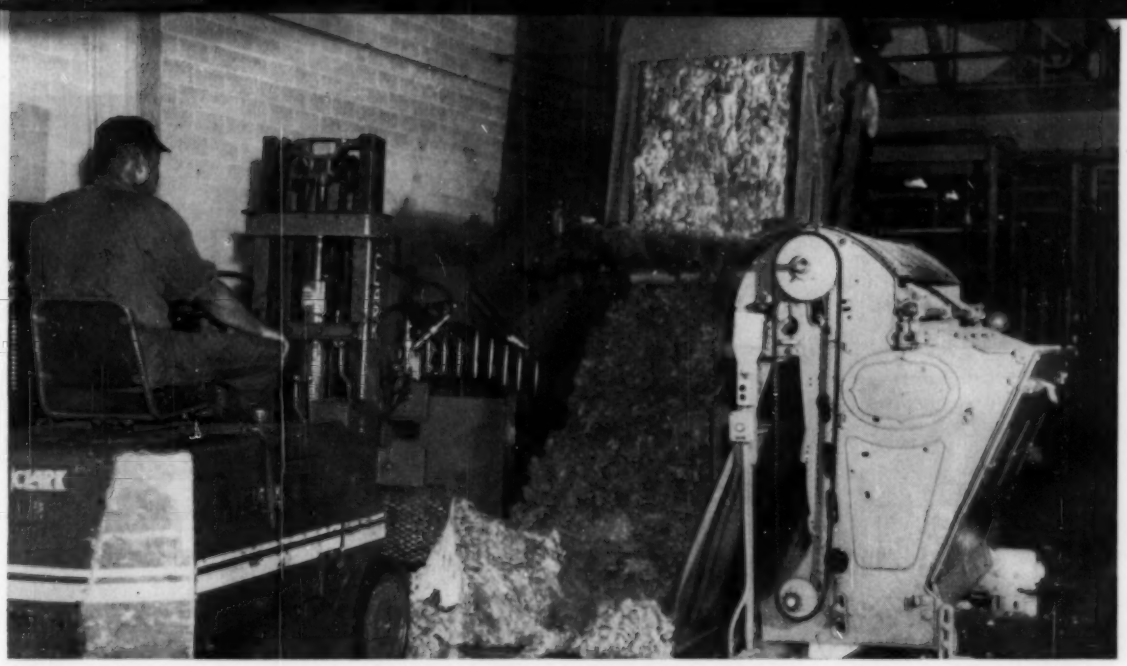
The South's first wool-combing plant has now settled down to producing high-grade wool tops with the aid of modern machinery that includes—

- **Fully automatic scouring units**
- **New French-combing equipment**
- **Gill reducers with Autolevellers**

By JAMES H. BLORE, Associate Editor, TEXTILE WORLD

CARD ROOM has a dropped ceiling with recessed fluorescent lighting. Each of the 41 cards has vacuum strippers that are used every 48 or 60 hrs.





SORTED WOOL is fed into the hopper of the five-bowl scouring unit by a tined fork truck that lifts many layers from the bins to give a uniform blend.

WELLMAN COMBING CORP. opened its Johnsonville, S. C., plant in Oct., 1954. Today, the plant is producing up to 300,000 lbs. of wool top weekly. Modern equipment, which includes Raper Autolevellers, and a modern building help to produce a thoroughly blended and even top that has passed through as many as 400,000 doublings.

Wool from Australia, South Africa, and South America is shipped directly to the plant via Charleston, S. C., or Philadelphia. Domestic wool is also used, but the lowest quality wool processed is 60s.

The raw-stock warehouse runs along the east end of the plant and holds up to 9,000,000 lbs. of grease wool, which is about two months' supply. The wool flows systematically through the plant to be shipped at the west end in top form.

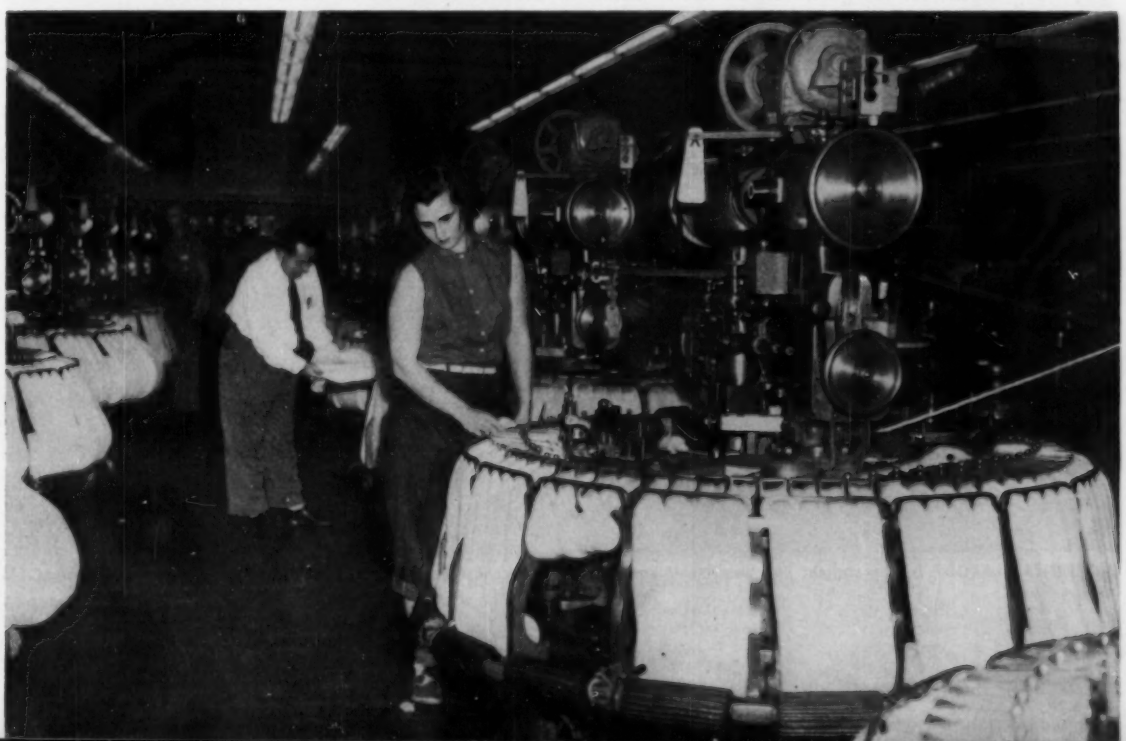
Wool Sorted on Conveyor

Domestic wool is received in loose 275-lb. bags. Each fleece is tied separately. Foreign wool is compressed in 325-lb. bales packed in 1,000-lb. bales. Blending starts at the sorting room where up to four bales are placed alongside the sorting conveyors.

The grease wool is fed by hand to each apron, and girls working alongside each apron sort out the wool according to the grade and length. The off sorts are placed on a conveyor moving to the right, and the graded wool moves on a conveyor to the left. Off sorts are placed in bales to be returned to stock for use with the correct blend.

Two inspectors check the sorted

NOBLE COMBS have all been fitted with individual drives. There are 22 Noble combs installed.



FRENCH COMBS are equipped with individual-end stop motions. A red light flashes when an end breaks. The 45 combs are laid out in three rows.

wool as it travels along the conveyor, which then transports the stock directly to one of three bins in the scouring department. Each of four bins holds up to 80,000 lbs. of wool, and the conveyor is regulated to drop the wool into the required bin.

The bins are close to the feed ends of the two five-bowl scouring units. A tined fork truck used to fill the hopper on the scouring units takes a vertical layer of the stock to further mix the blend.

The weight of stock passing through the scouring unit is controlled by electrical instruments. The feed-apron lattice from the hopper drops the wool onto a floating conveyor connected to a weight scale that controls the feed-apron speed. The weight is also recorded on a chart.

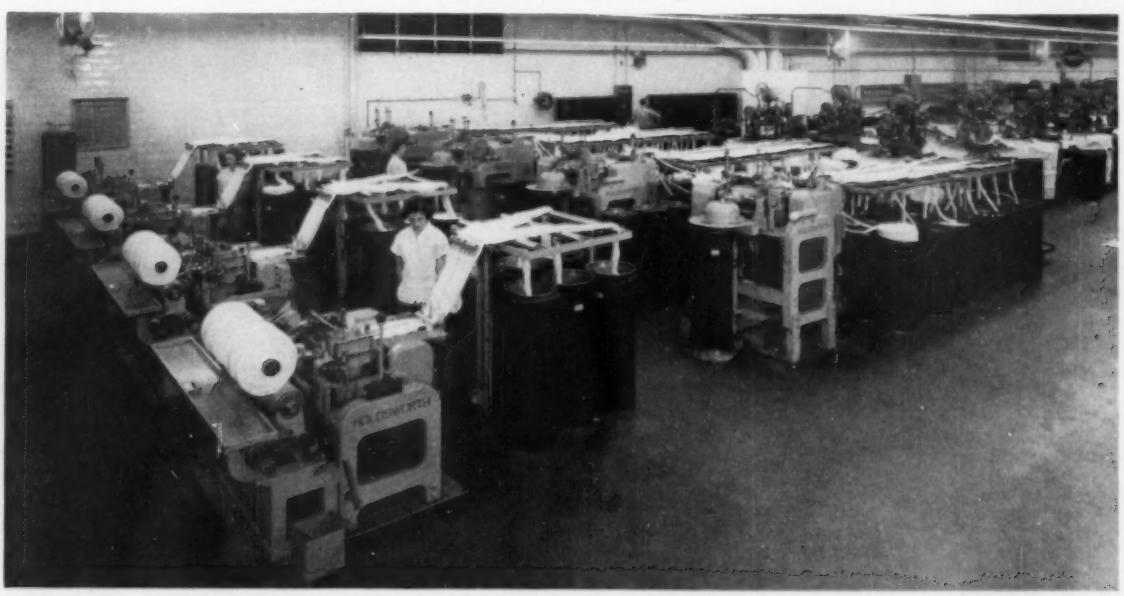
The first bowl on the scouring unit is a desuint operation where the wool is washed in clear, warm water. Wellman gets water from two 400-ft.-deep wells, and the water requires no treatment for scouring operations.

After the wool is squeezed between rolls, it is passed through two scouring bowls that use synthetic detergent as the scouring medium. Two hot-water rinses take place in the final two bowls.

Scouring Units Are Automatic

Scouring liquors and water are fed from tanks at ceiling level, and the flow is regulated automatically into the bowls. Automatic temperature controls and dump arrangements are fitted on most bowls. The squeeze rolls are pneumatically controlled.

A 12-in.-high tile wall around the scouring units keeps the scouring room free from excess water. A Buensod-Stacey unit in the center of the scour-



MACHINERY LAYOUT is in a straight line from Noble combing to the second finisher. The balled top put up in 15-lb. balls weighs 2¾ oz. per 5 yds.

AUTOLEVELLERS on the Holdsworth gill reducers automatically keep the sliver a constant weight. Too much deviation of the incoming sliver from standard stops the machine.

ing room circulates cool, washed air at all times.

The scoured wool is fed automatically into the dryer after the final squeeze roll. There are 10 fans in the dryer to circulate the hot air, which is kept below 200° F. Two ducts remove the moist air from the dryer and exhaust it through the roof. Foreign wools lose an average of 40% in weight during scouring, while domestic wools lose an average of 60%.

The dried wool falls directly into a chute and is sucked through pipes and automatically delivered to one of 32 bins in the card room. The bins are built into the wall on either side of the card room, and the cards are arranged with the feed ends facing the bins. A wide alley between the cards runs down the center of the room.

Cards Have Vacuum Stripping

Each card is equipped with Abington vacuum strippers, and the cards are stripped every 48 to 60 hrs.

To cut down on lint accumulations, a dropped ceiling was installed; and the fluorescent lamps are flush with the ceiling. To cut down on space behind the backwashers, slivers from two cards are fed into one can.

Temperature is controlled at 80° F. in the card room, and the relative humidity is kept at 72%. Colored rubber bands around the 18x24-in. sliver cans distinguish between lots and prevent mix-ups.

Sliver from each card is checked by the section man every shift while the quality-control department spot-checks. A grease-content check is taken every 30 mins. The tolerance

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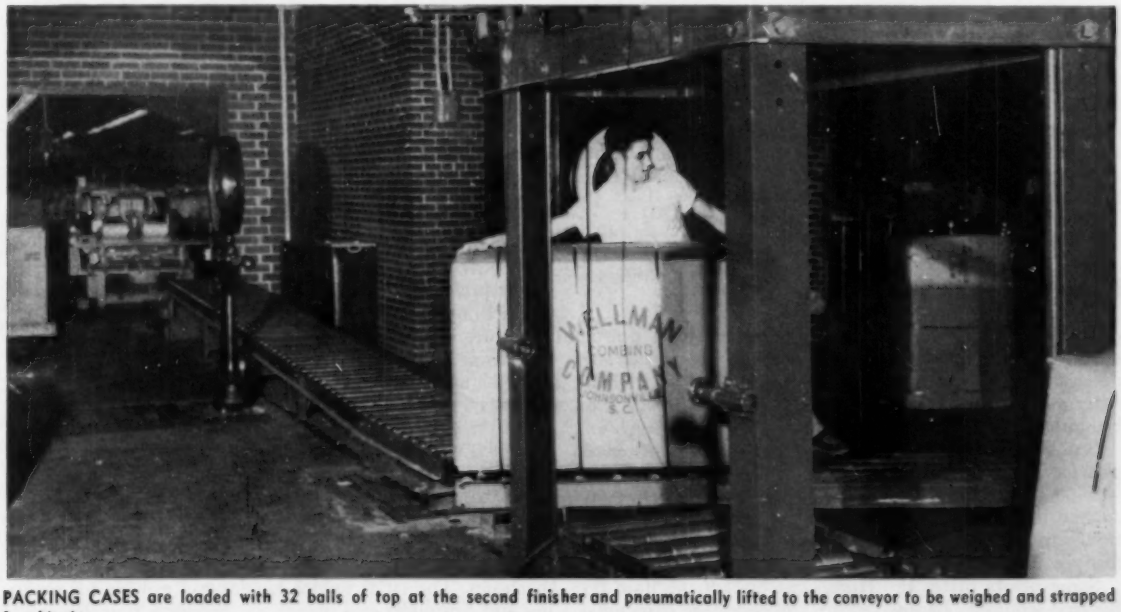
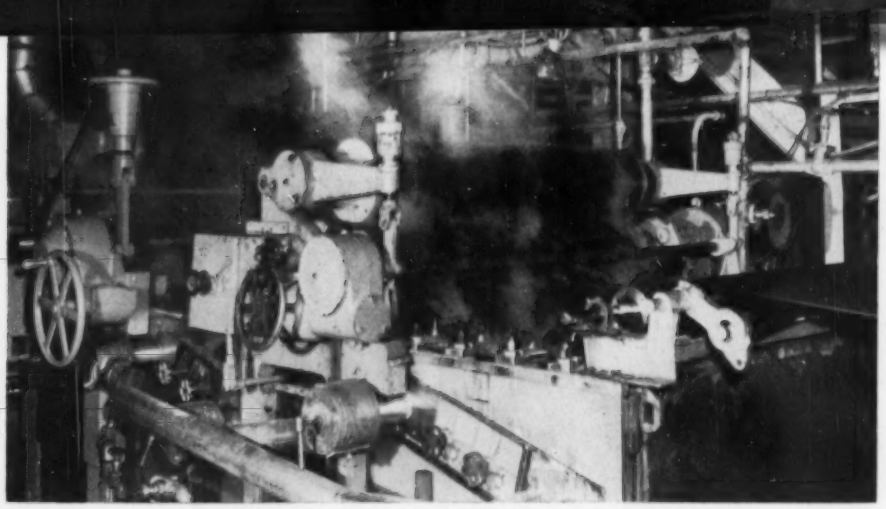


PACKING CASES are loaded with 32 balls of top at the second finisher and pneumatically lifted to the conveyor to be weighed and strapped for shipping.



TYPICAL INSTALLATION uses two Williams units to salt on color that has been padded on. Units are modified to suit the purpose of being interconnected to cut down shade variation. Salt solution and dye are fed to the first unit. Circulation between two units reduces variation in shade.

How To Dye DIRECT COLORS Continuously

Better dyes and aftertreating compounds have brought a dyer's dream to reality. Several dyehouses are using one or more of the following methods to get—

- **Fast colors**
- **Uniform dyeing**
- **Lower production costs**

By ROBERT W. PINAULT, Assistant Editor, TEXTILE WORLD

YOU CAN SAVE MONEY and increase production by dyeing cotton and rayon fabrics continuously with direct colors. New dyes and aftertreating compounds, used in machines originally developed for continuous vat dyeing, are producing results undreamed of a few years ago. Light, medium, and even some dark shades can be dyed continuously to meet the #3 AATCC Washfastness Test.

The method is practical when dye orders for a single shade run at least 8,000 to 10,000 yds.

Prepare Goods Thoroughly

The goods must be given extra-good preparation if even dyeing is expected. Spun rayon should be singed and desized with an enzyme that will work at 160 to 180° F. After a layover of 2 hrs., the first boiling-off process can be started.

Scouring methods vary from plant to plant, but good practice on spun rayons going to continuous dyeing will include an open-width boil-off system as the first step. A rope boil-off would tend to set creases in the fabric at this point, particularly in spun rayons weighing 60 to 70 lbs. per 100 yds.

Some plants prefer the Hinnekens boil-off machine for the first scouring. In this system, the goods are suspended on stainless-steel rods as they move through a tank containing 0.1 to 0.5% detergent plus a booster like tetrasodium pyrophosphate or soda ash. The goods are rinsed in a final box attached to the machine and generally sprayed with cold water just as they leave the boil-off to be pleated down in trucks.

Compartment Washers Can Be Used

The first open-width boil-off can be done in a series of wash boxes set up with nip rolls following each box. Some plants prefer the compartment washer because the squeezing action at the nips helps remove sizing. Four to six boxes are commonly used, the last two generally reserved for rinsing in hot water. Synthetic detergents boosted with soda ash are the most common scouring agents.

Tests for starch after the open-width boil-off may be negative; but safe practice for goods going to continuous dyeing is to follow up the open-width boil-off with a rope-soaping operation. Very few styles will show crack marks from rope-soaping after the sizing has been mostly removed.

Rope-soaping is done in a large beck rigged and threaded for continuous operation or in compartmented boil-off machines. The latter reduce tangles and provide for scouring and rinsing in one operation. Scouring time for rope-

soaping is at least 20 mins., and 30 mins. is not uncommon.

Fabrics in the 25- to-35-lbs.-per-100-yd. class can be looper-dried. Heavier goods should be can-dried or tenter-dried. The object is to produce a smooth-surfaced fabric. Some looper-dried goods may require a light steaming on an open tenter before dyeing to get a sufficiently smooth face.

Preparation of cotton fabrics should follow well-established methods that are necessary before any type of dyeing is attempted on this fiber. Kier-boiling followed by chemic-bleaching or continuous-peroxide bleaching will produce a satisfactory bottom for continuous direct dyeing. Here again no skimping can be allowed.

How Dyeing Is Done

Continuous dyeing with direct colors can be divided roughly into three systems at present. They are:

1. Pad, salt, rinse
2. Pad, salt, steam, aftertreat, rinse
3. Pad, dry, aftertreat, rinse

Goods dyed by any of these methods may get further dye-fixing treatment in the finishing bath.

The pad-salt-rinse method can be used to produce light to medium shades. To get around one of the bugs in continuous dyeing—tailing-off of shade—the pad box should be extremely small; a capacity of 2 to 5 gals. is plenty. Then the feed is adjusted so that the goods pick up liquor as fast as it is fed to the box. Distribution of dye across the entire face of the rolls is necessary and is provided by a perforated pipe. Padding temperature is 180 to 190° F.

One mill prefers to use an immersion box that holds 50 to 70 gals. of dye liquor and is equipped with rollers so that the cloth gets two or three passes in the dye before being squeezed out in the pad. This method works well with some color combinations. Tailing-off is somewhat compensated for by the large volume of liquor and an extra color feed during the salting operation, which is the next step.

Compartment washers or Williams units are both satisfactory for applying the 5% salt solution generally used. Two Williams units or two compartment washers are required for the salting step.

Use Extra Dye in Salting

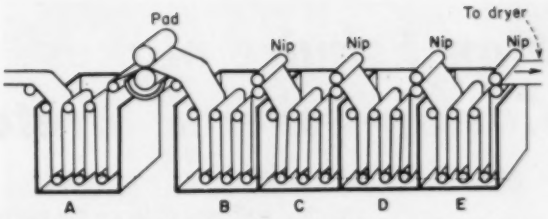
Because the dye is not set when the cloth enters the salting washers, considerable bleeding of color occurs. To make up this loss and to even up any tailing-off, additional dye is fed to the first salting washer. The formulas for this booster dye have to be worked out carefully to allow for the peculiarities of each dye in the combination—how much it bleeds, how fast it actually dyes, and so on. Salting temperature is generally kept at 180 to 190° F.

After salting, a warm-water rinse at 110 to 120° F. is followed by a cold rinse.

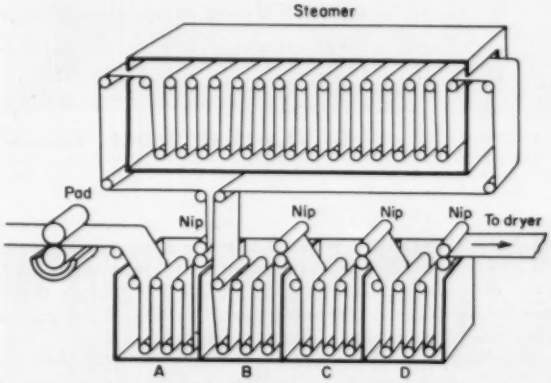
Treatment after this rinsing varies with the plant, the shade being dyed, and expected end results. In one plant the goods are given a light rope-soaping with a synthetic detergent plus 80 to 120 lbs. of common salt per 1,000 gals. of liquor at 110 to 120° F. Surface color but very little fixed dyestuff is removed by this final washing.

This simplest of the continuous-dyeing processes depends for success on careful dye selection; and if no further dye-fixing treatment is done in finishing, the method is limited to light shades. The method is perfectly satisfactory for applying some dyes that will stand a #3 AATCC Washfastness Test when aftertreated with resin-copper compound. In any case, the goods are dried after rinsing and the dye fixative is added to the finishing resins when the cloth is finished.

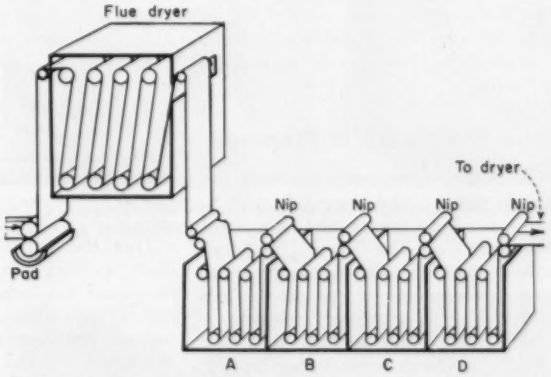
The pad-salt-steam-aftertreat method is used for dye-



SIMPLEST CONTINUOUS-DYEING SYSTEM consists of an immersion tank (A), a pad with a small box, and salting and rinsing boxes (B, C, D, E) all in range with a dryer. Aftertreating with copper-resin compounds in the finishing bath improves colorfastness.



COLORS THAT REQUIRE STEAMING can be handled in a setup like this. Steamer is generally large enough to give at least 3 mins. steaming time at 220° F. at a pad speed of 50 yds. per min. Boxes A and B will contain fixative; C and D are rinse boxes.



DRYING BEFORE FIXING requires a flue dryer ahead of the compartment washers or Williams units that contain the fixing and rinse baths. Boxes A and B will contain copper-resin fixatives; C and D are rinse boxes.

stuffs that require more time at an elevated temperature for initial fixation. One plant preheats the fabric with a run over three dry cans connected in range with the dye pad.

The dye is applied in a pad with a very small color box at about 50 yds. per min. and 65% pickup. The goods travel directly into a 5% salt solution kept at the boil and then into a steamer large enough to give a 3-min. exposure to steam at 220° F.

After leaving the steamer, the goods pass directly into a copper-resin aftertreating compound such as Gycofix 67. A ½% solution of this compound is used by one mill in

CONTINUED ON PAGE 180

How Esquire Makes Cotton-Covered Stretch-Nylon SOCKS

Hottest half-hose seller on the market this year may be cotton-covered stretch-nylon argyle socks. Here's how the first mill to produce these socks makes them. Key operations are —

- **False twisting on Superloft machines**
- **Muff dyeing in package-dyeing machines**
- **Knitting on conventional machines**

By JAMES H. BLORE, Associate Editor, TEXTILE WORLD

COTTON-COVERED STRETCH-NYLON SOCKS made by Esquire Socks Div. of Chester H. Roth Co., Inc., go through many operations before they reach the hosiery counter. Special techniques that start at the twisting process are used at the Burlington, N. C., plants to get maximum stretch in argyle socks and patterns similar to argyles while preserving appearance and comfort.

Yarn preparation is in three stages: the stretch-nylon yarn and the cotton covering yarn are prepared separately, and then the two yarns are twisted together.

How the Nylon Is Prepared

Stretch is first introduced into the nylon yarn on the Superloft stretch-yarn machine made by Universal Winding Co. The 70- and 100-den. nylon yarns on 2-lb. pirns from the yarn producers are placed on the low creel under the Superloft machine.

The yarn is run up through a disk tension and three times around a roller that is friction driven to give a desirable overfeed for the best stretch. Tension on the yarn, which is important at this stage, is controlled between 12 and 17 grams.

The nylon yarn then passes through an electrically heated box that is maintained at 450° F. Thermometers fitted to each section of heaters are constantly checked for correct temperature.

Above the heater box is the false-twist spindle that rotates at 30,000 rpm. to put 60 tpi. in the yarn. This twist runs back to the heater box where the yarn becomes plasticized and the twist set in the yarn.

The twist runs out of the yarn when it leaves the small pulley on the false-twist spindle, and the yarn is traverse wound on a take-up package. Each 2-lb. package of 70-den. yarn takes one week to process, but each machine has 215 spindles.

As the pirn runs out, the take-up package is removed; no knots are tied. The machine is rethreaded with a hooked tool and the yarn wrapped twice around the spindle pulley. One man constantly patrols the machines checking for correct yarn threading, particularly at the friction-driven roller. A stroboscope is used to check spindle speeds on all machines three times weekly.

The Superloft machines require little maintenance because the nylon bearings require no oil and the spindle-belt tightness is automatically maintained. The swing gates are oiled weekly.

Half the Superloft machines have their spindles running in one direction, and the other half run in the opposite direction. The ends of the take-up packages from half the machines are painted in a different color from the ends of the other packages to keep the twists from becoming mixed.

Two Ends Twisted Together

Universal downtwisters are used to twist one end of yarn from the clockwise-running spindles with an end from the other spindles to neutralize torque in the yarn. These twisters have 100 spindles and twist 18 lbs. per spindle of 70-den. yarn per week on 4¾-in. rings. This spindle speed is 6,000 rpm. to put 2½ tpi. in the doubled yarn.

The yarn is next wound on a 42-in.-reel skein winder to form muffs for dyeing. The yarn is wound at 350 yds. per min. with a 4-in. traverse to form a skein that contracts when it is taken off the reel. The muffs are treated in a Lydon steam box to relax and allow the yarn to get maximum stretch.

The muffs weigh about 8 oz. each, and they have an open wind that allows excellent dye penetration. Colored tie bands keep yarn sizes from becoming mixed, and yarn sizes are each dyed separately because of their different affinities for dyestuff.

The muffs are examined before they are placed on the perforated dye-carrier spindles. If dark spots caused by static pickup are noticed, the yarn is not used for pastel shades.

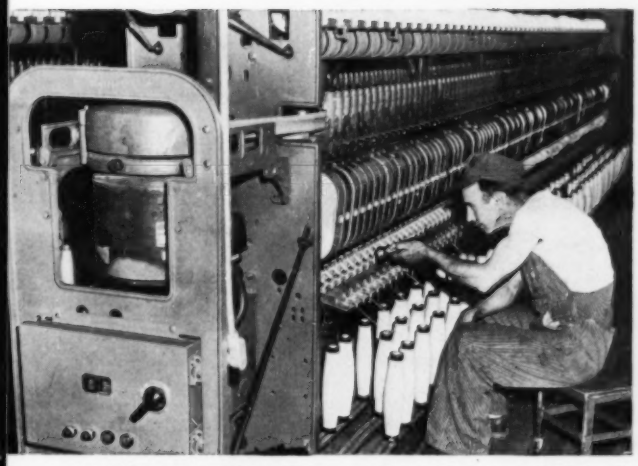
Narrow cotton sleeves are slipped over each spindle to prevent damage to the nylon yarn during dyeing. A bullet-shaped adaptor prevents yarn damage and keeps the cotton tube in place while the muffs are placed on the spindle. Eleven muffs are placed on each of the 15 spindles.

Dyeing machines are automatically controlled. The full carriers are loaded into the machine, and dye liquor is forced through the spindles at 5 gals. per min. The flow is reversed every 5 mins. Dyeing takes from 3 to 5 hrs. Acid dyes are used for the nylon, which is also treated with tarteremetic acid and tannic acid to give better wash-fastness.

How the Cotton Yarn Is Prepared

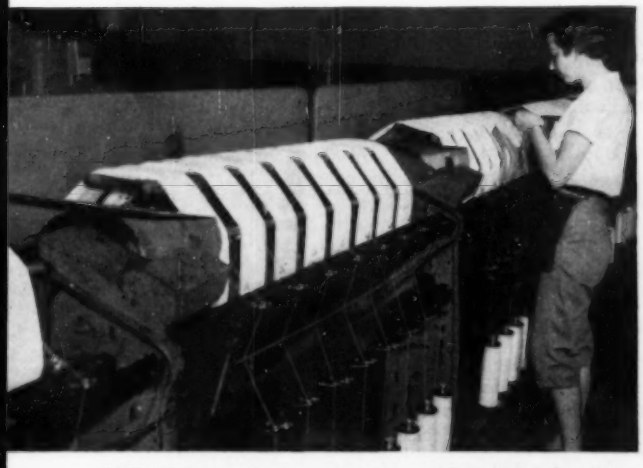
Cotton yarns are wound on 1⅝-in. dye tubes covered with a cotton sleeve to keep the dye pressure from damaging the yarn. The edges of each package are crimped down to prevent hard spots that would make uneven dyeing. The cotton yarn is dyed on carriers with 28 spindles.

Vat and naphthol dyes are used on



SUPERLOFT machine puts the stretch in the nylon yarn. The 70- and 100-den. yarn runs through the heater boxes to the false-twist spindle.

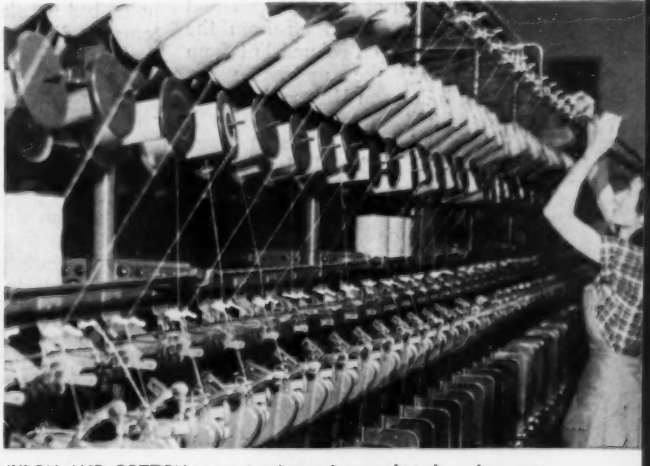
TWO ENDS of stretch-nylon yarn that have been false-twisted in opposite directions are twisted together to neutralize torque in the yarn.



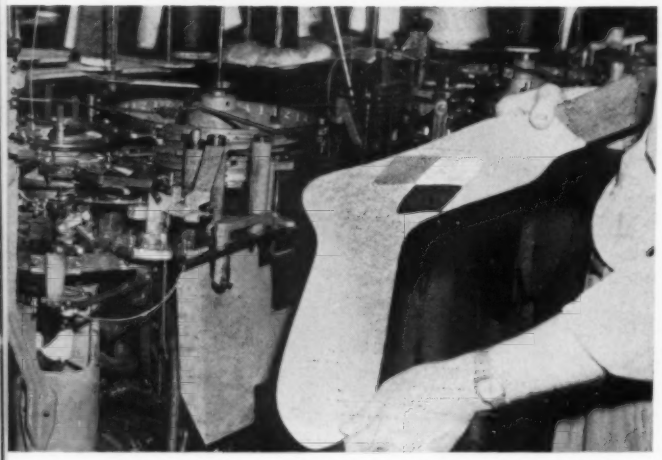
PLIED YARN is wound on a reel to produce skeins for dyeing. After treatment in a steam box, the skeins relax to form a muff.

MUFFS of stretch-nylon yarn are pressure dyed in automatic machines. Each of the 15 spindles on the carrier holds 11 8-oz. muffs.

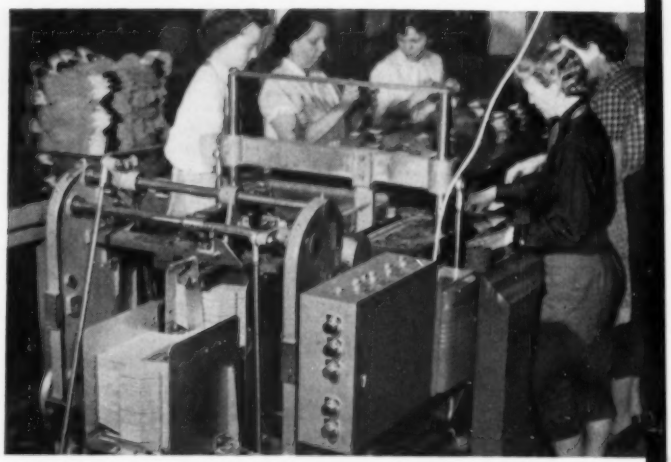
SAMPLE MACHINES are used to dye 2-, 10-, and 20-lb. lots to obtain formulas to get exact matches of the nylon and cotton yarns.



NYLON AND COTTON are twisted together so that the nylon yarn is covered by the cotton. The twisted yarn is wound on cones.



SOCKS from all knitting machines are tested for size each shift on a 14-in. board.



FINAL OPERATION is packaging, which is done by this machine that processes 1,200 doz. socks daily.

cotton yarns. Three sample dyeing machines are used to work out the dyestuff formulas to give an exact union shade for the nylon and cotton yarns. After small swatches are dyed at the steam table, cotton packages are dyed on 2- and 10-lb. sample machines and the nylon is dyed on a 20-lb. machine.

Yarns are partially dried in an extractor for 30 mins. The nylon muffs are removed from the spindles and fully dried in a drying oven for 4 hrs. Cotton is dried for 9 hrs. in a Smith, Drum dryer that forces air at 180° F. through the spindle apertures.

The cotton yarn is then wound on cones through wax disks and over an emulsion roll to make the yarn pliable for knitting. The nylon yarn is wound from the muffs onto spools while the muff rotates on an adaptor fixed to a ball-bearing spindle.

The cotton and nylon yarns are twisted together at the next operation in a room partitioned off from the main plant to keep colored lint from contaminating the undyed yarns. Twisting is done on Universal Atwood frames with 4¾-in. rings. Tension is placed on the cotton so that it covers the nylon when the plied yarn contracts.

The cotton-covered stretch-nylon yarn is then wound on cones on a Universal No. 50 winder. A medium-soft package is made for knitting, and 3% oil is added to lubricate the yarn and to kill static. All knots are tied at the top of the cone to prevent plucking during knitting.

How Knitting Is Done

Part of the Esquire argyle line is made on 162 Crawford knitting machines operating in one room. These machines produce about 2½ doz. conventional argyles or 2 doz. complicated patterns each 8-hr. shift.

An incentive system in the knitting room keeps seconds down to an average of 3% and needle breakage to about four needles per machine per week. A master chart in the knitting room shows the average seconds rate from various styles, and an incentive chart in a conspicuous position shows each knitter's production.

Many Styles and Colors Used

A construction book is also available to all knitters and fixers to check on color combinations and layouts, since 12 different styles are made at one time. Each style may have up to 14 different color combinations.

The knitter inspects each sock for faults as it falls from the machine into the basket. The machine is stopped if holes, bad needle marks, or faulty patterns are discovered. One fixer checks the size of stretch argyles each shift by testing the socks on a 14-in. form.

The knitter also cleans her set of 30 to 34 machines down continously with a cloth to keep lint from cluttering up the yarn guides. Fixers clean one-third of their machines down each shift with an air hose.

The yarn fingers on the Crawford machines introduce the colored yarns from the outside of the cylinder. This leaves a loose end of yarn, but an air attachment on each machine blows the loose end of yarn into the cylinder to keep it from knitting into the fabric.

The air blast, which occurs each time the yarn changes, is operated from a valve working on studs on the inside of the pattern drum. Pressure of 150 lbs. per sq. in. is obtained from a compressor via pipes running under the line shaft.

To get the maximum stretch possible on socks from the 108-needle machines, 2/100-den. stretch-nylon yarn is combined with 16s cotton and knitted with a long stitch and little tension on the yarn to allow the socks to stretch and relax.

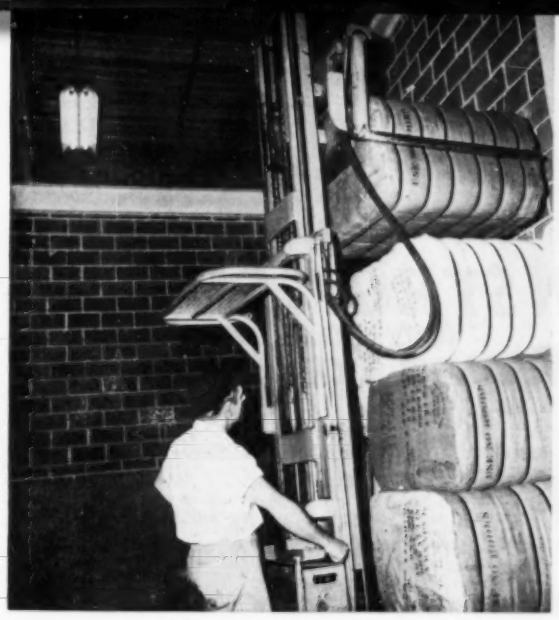
All Socks Are Inspected

After the toes have been looped, all socks are inspected. Loose ends that have knitted into the fabric are removed with a special tool. Seconds are sorted out and sent to the menders. Socks that can be repaired are put into bins to make up complete lots.

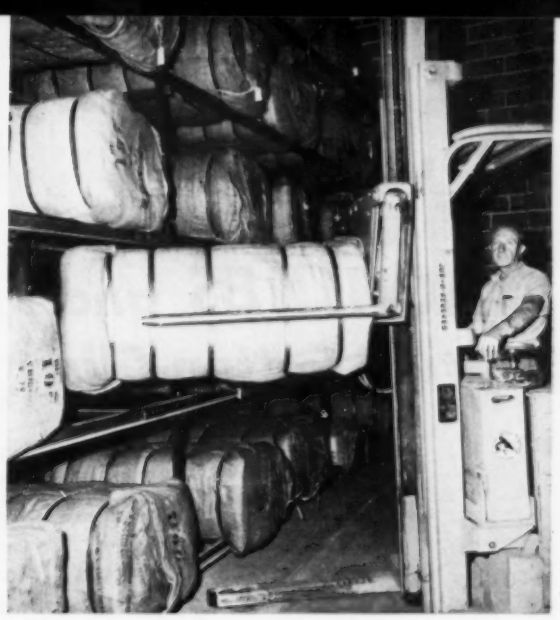
All Esquire socks are treated with a cationic softener in Smith, Drum rotary machines. This process also serves to relax the goods.

A centrifugal extraction for 15 mins. follows softening. Tumble-drying for 5 mins. gives the socks a still better hand. The socks are then put on cardboard forms, inspected, and transferred to the packaging section, where an automatic packaging machine made by Dacam Corp. wraps each pair of socks in an attractive package.

Flat cards are placed in one end of the machine, and one card at a time is automatically pushed forward to form a package with an opening to see the socks. As the packages travel along a conveyor, three girls lay a pair of socks in each package. The packages are automatically sealed and passed to a second conveyor that drops them onto a third conveyor where three more girls fix the Esquire label. The packages are then placed in boxes for shipment.



FIVE-HIGH STACKING of rolls or bales cuts down floor space necessary to warehouse incoming materials.



PULLING A BALE to make up a lot is simplified by stacking in racks. Records indicate exact position of every bale.

"Back-Breaking Work" Eliminated at Aspinook

USF-Aspinook Corp.'s plant at Norwich, Conn., had a serious problem in storing and handling the several thousands of bales, rolls, and cartons of fabric that move through the plant every week. Conversion to power-trucking and a new warehouse have given the company—

- **Centralized storage**
- **Labor savings up to 70%**
- **Side benefits of convenience and accessibility that help scheduling and delivery**

By **ROBERT W. PINAULT,** Assistant Editor, TEXTILE WORLD

MECHANIZING THE MOVING AND STORING of fabric in several forms has produced direct and indirect benefits for USF-Aspinook Finishing Div. of Gera Corp. at Norwich, Conn.

Warehousing incoming bales and rolls and storing finished goods awaiting shipping orders has always been a big problem for finishing plants. At Norwich the situation had become so complicated and expensive that management called a halt to the old ways and engineered a complete new setup.

Most of the existing buildings could not be adapted to the proposed new storage and handling system; so a new warehouse was built that gives 40,000 sq. ft. of centralized storage space that replaces 120,000 ft. formerly required. To gain accessibility, all bales and rolls are stored in racks. To make up for loss of storage space occupied by access aisles, the racks are five tiers high. And to keep aisle space to a minimum, USF-Aspinook bought two Lewis-Shepard electric trucks that can maneuver in a 7 ft. 6 in. aisle.

Trucks Modified

The Lewis-Shepard Model M trucks used in the warehouse were especially built to lift 2,000 lbs. to 170 ins. Mechanization permits stacking of bales, impossible with old methods of bale storage that depended on manpower alone. A specially designed hydraulically operated clamp 40 ins. long picks up the bales or rolls for transportation. A third gas-powered truck is used for longer hauls and where it is necessary to travel out of the warehouse, through the yard.

When plans were being drawn up for the new warehouse, provision was made to use a portion of the building for the gray room. Practically all of USF-Aspinook's production is laid out, sewed, and started on its way within a few feet of the storage area. Orders received from customers can be put in process in minutes, instead of hours —a common delay under old-style decentralized warehousing.

Filing System Used

As W. C. Filz, resident manager, puts it, "We've got a filing system now, instead of a jig-saw puzzle. We

CONTINUED ON PAGE 184

MACHINES and INSTRUMENTS
Feature Cotton-Clinic Round Table

- Direct-spinning machines, testing instruments, and raw-fiber qualities were discussed at the recent Pinehurst meeting of the Cotton Research Clinic.
- Papers digested in this issue cover a Japanese sliver-to-yarn spinning machine, high-speed drawing problems, instruments for testing modulus and evenness, and qualities of the 1955 cotton crop.
- The remaining papers were briefed in the April issue of TEXTILE WORLD.

MODULUS and Weak Places
Can Be Measured Continuously

- A machine developed at Clemson School of Textiles measures weak places in yarn more effectively and at higher speeds than the single-end tester does

By **HUGH M. BROWN,** School of Textiles, Clemson College

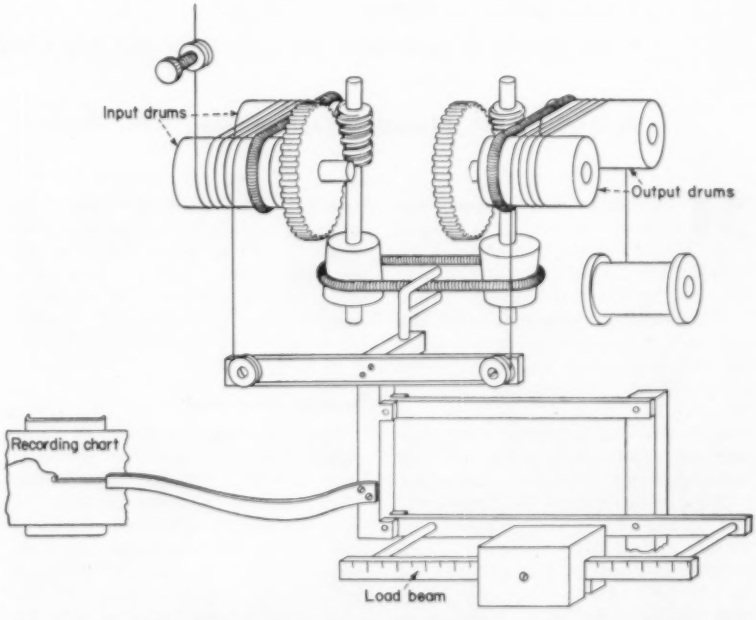
A machine to measure yarn modulus continuously has been developed at the School of Textiles, Clemson College. Simply constructed and practically free of any type of adjustment, the machine prevents yarn slippage by means of snubbing drums.

A pen arm attached to the assembly that transmits the load to the yarn loop records the variation in elongation. From a reading of the elongation on the chart and the load setting on the load beam, the average modulus between two given loads can be computed. The modulus ascertained by this method is somewhat lower than that obtained from the usual stress-strain curves.

Another application of the machine is to detect and record potential weak places in the yarn being tested. The machine also may be altered to measure force at constant elongation instead of elongation at constant force.

Advantages of this method of testing over individual break tests include the following:

1. In processing, breaks occur at



CONTINUOUS YARN TESTER employs slubbing drums to prevent slippage. Modulus and weak places are recorded automatically.

weak places in very long lengths of yarn. Measurement of these weak places continuously is more effective than testing 10-in. single ends because the latter method gives an average of many strong places and a few weak spots.

2. A much larger quantity of yarn can be tested than by the single-end method.

3. Yarn can be tested at higher speeds than with single-end testers.

4. The lower modulus obtained may correlate better with ends down in processing.

Use the Brush Analyzer For TROUBLE SHOOTING

• By varying the settings on the Brush analyzer, you can spot the causes of many periodic variations that might get by otherwise. Here are some pointers on how to use the instrument.

By E. J. BERNET, GEORGE Z. DUNN, JR., and W. C. HARRIS,
Institute of Textile Technology

There are certain settings, such as pen average, pen sensitivity, chart speed, and material speed, which can be used on the Brush uniformity analyzer to assist in the search for periodic variations. The particular setting to use in searching for periodicities is generally dependent upon the distance between the expected periodic variations.

For closely spaced periods (3 ins. to 10 ins.) in the material, a fast chart speed (25 mm. per sec. or 125 mm. per sec.) and the pen average at position 0 or 1 are generally used. A slow chart speed (5 mm. per sec.) and the pen average at position 2 or 3 will indicate longer periodic variations. The pen sensitivity control is usually used to increase the amplitude of the variations on the chart after the pen average and chart speed have been selected.

There are many mechanical faults in cotton processing that cause periodic variations. An eccentric roll or gear on a drawing, roving, or spinning frame can cause a wavy pattern of thick and thin places in the stock.

A pattern formed in the material by a flat spot on the top roll is dependent upon the roll position on that particular frame. A flat spot in the back-roll position has very little effect, but in the third-roll position on a four-roll frame it causes a thin place directly followed by a thick place. A defective front roll causes periodic thick places in the material.

Defective bottom rolls on the drawing frame affect the sliver differently, depending upon the position on the frame. Defective drafting rolls used primarily as delivery rolls have a greater effect on the resulting sliver than defective rolls used as feed rolls do.

Most of these mechanical faults have a particular pattern that can be distinguished by proper use of the uniformity analyzer.

HIGH-SPEED DRAWING?
Consider These Factors

• High-speed drawing appears to be here to stay, but there are many factors a mill should look into before buying new drawing. Some of the factors are maintenance and operational costs, quality of sliver, and effect on subsequent operations.

By L. H. HANCE, Institute of Textile Technology

Mills considering the installation of high-speed drawing would do well to consider the effect of increased speeds on maintenance costs, operational costs, sliver quality, and subsequent processing. Other factors that might also be considered are the amortization of the cost of the machine and the floor space it will require.

Maintenance Costs. The sensitivity of stop motions should be altered because broken sliver must be detected rapidly to prevent quantities of stock from being fed at high speeds into the drafting rolls. Lap-ups will contain two or three times as much stock and require more time to correct. The same is true of sliver breaking in the coiler head.

CONTINUED ON PAGE 186

Data on the Japanese DIRECT-SPINNING Frame

• There are 500,000 OM-S sliver-to-yarn spindles in place in Japan. Here's how three mills are set up to operate the machines.

By EDWARD S. RUDNICK

During the last several months, I have had an opportunity to study the OM-S sliver-to-yarn machine in several mills in Japan. The accompanying table summarizes my observations in three Japanese mills.

It is difficult to make a direct comparison between workloads in Japan and in the United States. I had the general impression in all Japanese mills that the percentage of time each worker spends on cleaning and machine maintenance is much greater than spent in the United States. The workloads shown, even though substantial on full-scale operations, would probably be higher here.

In general, the OM-S frames usually yield 5 to 10% higher break factors than conventional frames. We have spun on our test frame about 40 different yarn numbers from 7.5s to 105s for over a dozen different North American companies, and tests indicate that the yarns are either equal or superior to conventional-spun yarns from the same stock.

OPERATING DATA IN JAPANESE MILLS

	Mill A	Mill B	Mill C
Total spindles (OM-S)	30,000	50,000	50,000
Yarn numbers	30s, 40s	40s	40s
Ring size (ins.)	1 3/4	1 7/8	1 7/8
Spindles per frame	420	400	420
Staple lengths (ins.)	1 1/32 1 1/16	1 1/16	1 1/2 (rayon) 2 1/2 (rayon)
Spindle speed (rpm.)	10,400	9,600	11,000
Front-roll (7/8 in.) speed (rpm.)	152	137	.....
Creeling practice	Individuals	Sections	Spinners
Spindles per spinner	3,260	3,200	2,940
Spindlers per doffer (team doffing)	3,260	3,600	3,790
Spindles per creeler	10,080	5,200	0
Ends down per 1,000 sp. hrs.	22	25	18

STRONGEST YARN Produced By Early 1955 Cottons

• Fiber and spinning-test data indicate that cotton quality fell off as the harvesting season progressed

By J. M. COOK, U. S. Dept. of Agriculture

Fiber and spinning-test data on commercially grown varieties of cotton bred to produce staple lengths of 1 1/32 to 1 1/32 ins. are now available for 12 states. Results from early, mid, and late harvestings are represented; and each is averaged according to the state in which the cotton was grown.

The yarn-strength data indicated that the quality of the cotton fell off in all states except Arizona as the season progressed. On the average, early-season samples gave stronger yarns than the midseason samples; and the midseason samples gave stronger yarns than the late-season samples. This order was reversed for the Arizona samples.

The average yarn-appearance grades for the early and midseason samples did not reflect a consistent difference in favor of either period of harvesting. The samples from late picking in 11 out of the 12 states were manufactured into yarns giving the poorest appearance. In some instances, the grades were only slightly lower than the early or midseason cottons, but in most comparisons the differences were significant.

The average classer's lengths for the samples of each harvesting period of all states indicated that there were no consistent differences between the lengths of the early and midseason samples. Some comparisons showed slightly longer staple for the early cottons; however, there were six states that showed the first and second pickings to have the same length. The late-season samples in six out of the 12 states were slightly shorter on the average than either the early or midseason samples, which indicates that the classer may have detected a difference in quality.

The Fibrograph results did not re-

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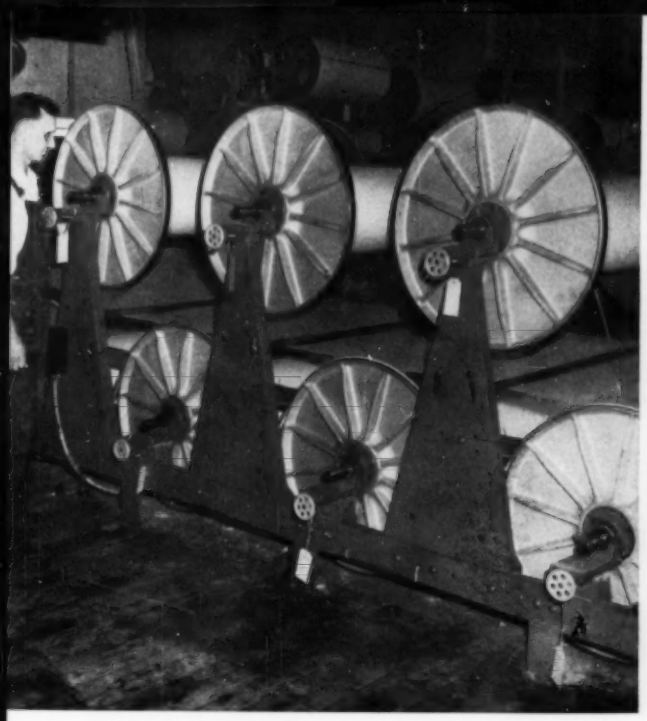
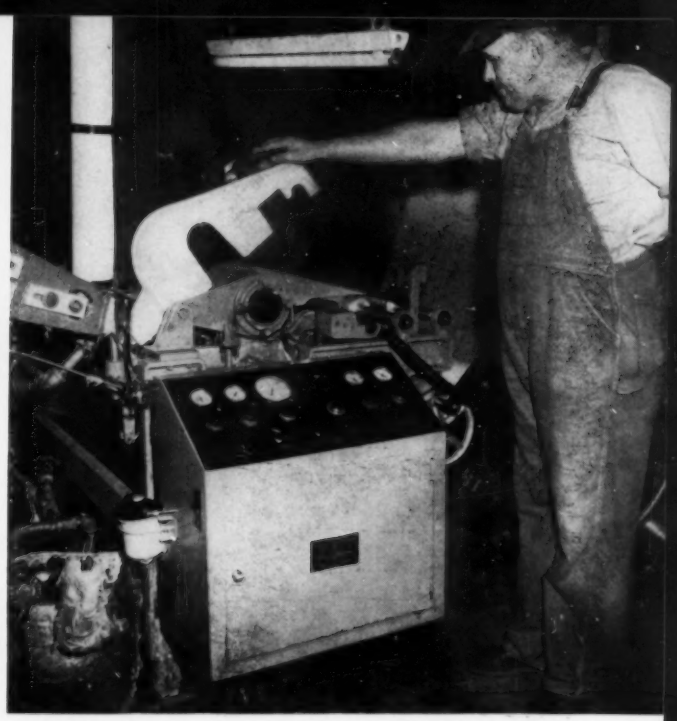


ALUMINUM BEAMS with 32-in. heads are mounted in Joanna's new slasher creels.



THE SIZE BOX on each of the slashers has electronic controls that regulate size pickup.

Creels Give New Look To Joanna's SLASHER ROOM

Improved creels supplement other up-to-date equipment in the slasher room at Joanna Cotton Mills to—

- **Increase output**
- **Improve quality**
- **Cut handling costs**

By **JAMES P. SLOAN,** Joanna Cotton Mills Co.

JOANNA COTTON MILLS, Joanna, S. C., is installing new creels in its slasher room. The beam journals revolve on the new creel in ball-bearing housings. The rods over which each individual sheet of yarn passes are also mounted in ball bearings.

The new creel has two outstanding advantages over the creel it is replacing. First, a larger beam that will hold 60% more yarn can be used. The increase in package size results in less downtime at both warper and slasher. Second, the over- and-under method of running the sheets of yarn is eliminated, and the yarn from each beam passes over individual rollers. Each sheet of yarn passes to the size box independently and with a minimum of friction and strain.

The new creels will accommodate a 10-beam slasher set. The beams are made of aluminum and have 32-in. heads. A typical filled beam contains 383 ends of 60s yarn, 64,000 yds. per end. Approximately one bale of cotton is required to make enough yarn to fill one of these beams. The conventional rope-and-weight type of friction is used to keep the beams from overrunning when the slasher is slowed down or stopped.

Bad Selvages Eliminated

Although the new-type creels have been in use for only a short time at Joanna, the following advantages are already being obtained:

1. Greater output is made possible by longer-running slasher sets.

2. The beams run independently of each other, and each sheet of yarn has the same amount of tension and stretch. The yarn is laid more uniformly on the loom beam, and there is a minimum of waste at the end of each set.

3. The new creel has practically eliminated slack, tight, and other defective selvages caused during the slashing process.

4. When it is necessary to run a defective beam or when a break-out or draw-back occurs, remedial measures can more readily be taken. The sheets of yarn are pulled from the beams independently, and any abnormality in one beam has no effect on the others.

CONTINUED ON PAGE 188

SIX HOPPERS feed two lines of opening equipment.

How Johnston Cards and Spins COMBED PEELER YARN

Johnston Mfg. Co., Charlotte, N. C., improved quality and production of 10s to 40s combed Peeler knitting yarn by—

- **Rebuilding ribbon lappers**
- **Installing new combers**
- **Enlarging roving packages**
- **Adding new spinning**

By WILLIAM G. ASHMORE, Associate Editor, TEXTILE WORLD

JOHNSTON MFG. CO., Charlotte, N. C., a sales-yarn mill, recently completed a modernization program covering carding and spinning, with emphasis on combing. Immediate results were improved yarn quality and evenness, cleaner yarn, and lower production costs.

Johnston produces weekly around 124,000 lbs. of 10s to 40s combed Peeler yarn; the average number is 22s. Cotton used is 1 1/32- to 1 1/8-in. Strict Middling Delta with a Micronaire reading of better than 4.0. Sixteen bales are laid down, and feeding is from all of them.

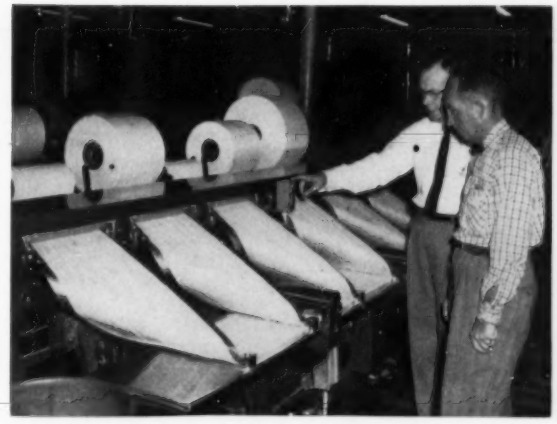
Six Saco-Lowell No. 7 feeder hoppers and one waste hopper feed to a conveyor table and reversing apron that supply two lines of opening equipment. Each line consists of two No. 5 hoppers, two vertical openers, one No. 12 opener, one No. 11 dust-and-waste extractor, and three Superior cleaners.

The picker room has four Kitson single-process pickers, supplied by an automatic feed control. Each picker has two three-blade beaters. The back beater runs 1,000 rpm.; the Kirschner beater in front runs 890 rpm. Production of a 54-yd., 14-oz. lap requires 8 mins. per picker.

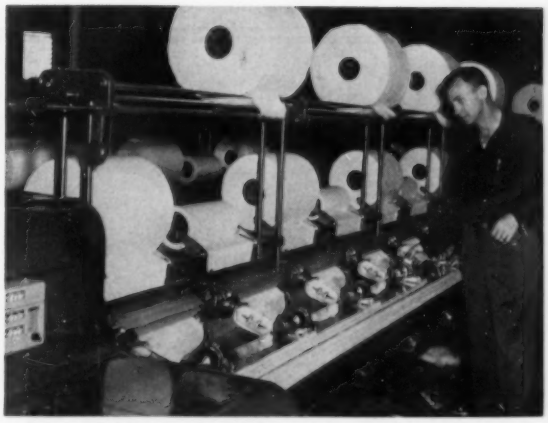
New Cards To Be Added

In the card room, there are 137 Whitin cards producing a 50-grain sliver at 7½ lbs. per hr. Settings and speeds are standard, based on a cylinder speed of 165 rpm. Eighteen additional cards are to be installed.

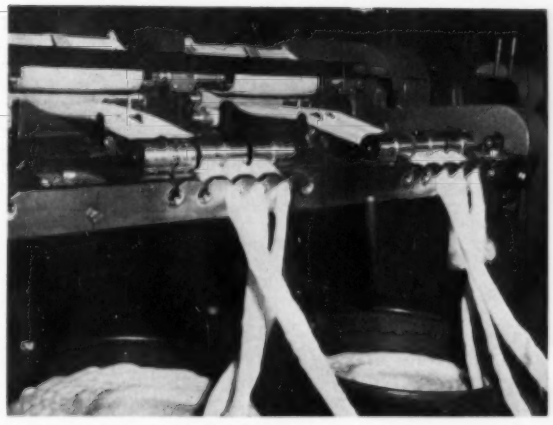
Combing preparation consists of eight Whitin sliver lappers, 20-ends-up, followed by eight Whitin ribbon lappers, six-ends-up. A 680-grain lap is



RIBBON LAPPERS were enlarged from four-ends-up to six-ends-up.



NEW COMBERS increased production nearly 100% per machine.



SLIVER is doubled at the breaker drawing to improve evenness.

NEW SPINNING was added, and old spinning was converted.

produced by the sliver lappers; a 750-grain lap is made by the ribbon lappers.

In the combing section, there are 30 new Whitin Model-J combers with four-over-five draw boxes. The combers operate at 148 nips per minute. Production of 56-grain sliver is 34 lbs. per hr. at 94% efficiency, compared with 12 to 18 lbs. per hr. produced on the old combers.

Drawing consists of 70 deliveries each of breaker and finisher three-over-four Saco-Lowell equipment, six-ends-up. A 56-grain sliver is made on both sections at 123 ft. per min.; draft is six.

Comber sliver is run double at the breaker drawing to improve evenness. Variation averages 12 to 13% and is not permitted to exceed 15%.

From 1.50- to 2.50-hk. roving is made on 18 Whitin G-10-C single-process Inter-Draft roving frames equipped with Pneumastop. When the Pneumastop was first installed, the strong air currents blowing along the floor caused dust and lint to get into the roving. The trouble was eliminated by placing baffles across the air vents to direct air currents upward.

Wide Cradles Installed

The spinning room contains 78 frames with a total of 20,208 spindles. Twelve of the frames are new Whitin F5 models; the other frames have been converted to CleanAlign drafting with 36-mm. cradles.

Drafts range from 13.4 to 32, traverse 7 to 9 ins., front-roll speed 142 to 200 rpm., twist multiplier 2.50 to 3.40, and yarn on the bobbins 2.50 to 3.40 oz.

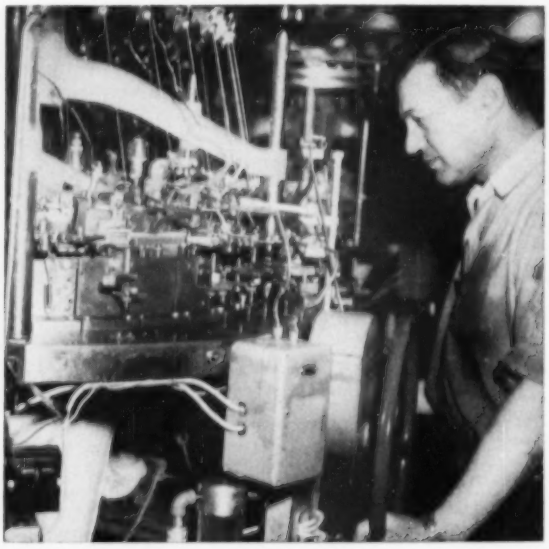
Auxiliary spinning equipment includes Pneumafil and Parks-Cramer overhead cleaners.

For shipment, the yarn is wound on 2¾-lb. packages by 12 Foster 202 100-spindle winders.

Johnson is air conditioned with a cleaning-and-refrigerating system installed by Bahnson Co. Temperature is kept at 78° F. and humidity at 50% in both the carding and spinning rooms.

An interesting feature of the mill is the color of the walls. Each room has a different color scheme consisting of contrasting pastel shades of green, pink, gray, and other colors. Brightly lighted by overhead fluorescent lights, the rooms present a very pleasant appearance. Superintendent W. L. Brightwell says that he decided to paint the walls in bright colors to keep the operators from feeling closed in when the windows were walled up, and the operators like the idea. In fact, after the mill painted the walls and installed air conditioning, absenteeism dropped sharply.

INTERLOCK MACHINES have 26 or 30 feeds and run at 23 rpm. Eight machines rebuilt by Mr. Philip knit more than 3,500 doz. Orlon sweaters weekly.



YARN CARRIERS swing outward to put the yarn in the next feed to change from interlock to rib. Lint is blown off automatically every 2 mins.

At Philip Knitting Mills—

Eight Machines Knit 3,500 Doz. SWEATERS Weekly

New attachments to regular yard-goods interlock machines that produce knitted garment lengths with finished rib bottoms have—

- **Increased production**
- **Simplified sweater knitting**
- **Improved gauge fineness**

By JAMES H. BLORE, Associate Editor, TEXTILE WORLD

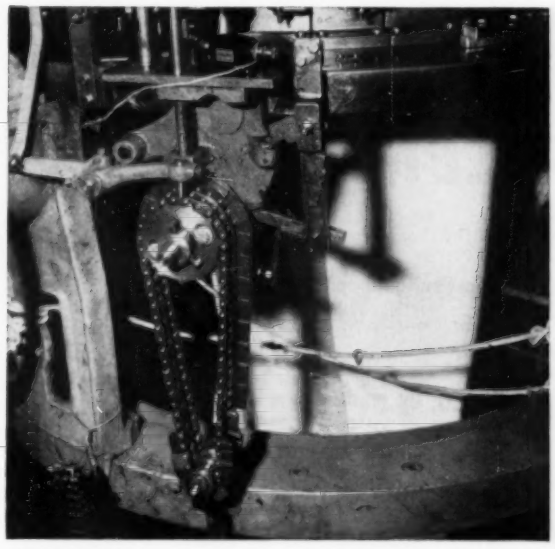
ONE YEAR AGO, Morris Philip, president of Philip Knitting Mills, Bronx, N. Y., converted a number of regular Scott & Williams interlock yard-goods machines to produce interlock sweaters with rib bottoms. Eight of these machines are now running three shifts on Orlon yarns to produce about 3,500 doz. long-sleeve sweaters each week.

The machines have 26 or 30 knitting feeds, one draw-thread feed, and one separating feed. They are 13 and 14 cut, but Mr. Philip has successfully run similar machines in gauges up to 24 cut.

The 30-feed machines run at 23 rpm. and do not slow down for changes in knitting. One machine knits 40 to 45 sweater pieces each hour to make at least 4 doz. long-sleeve cardigans.

Yarn Carriers Swing Out

Conventional needles are used. The change-over from interlock fabric to 1x1 rib fabric is done by swinging the



THREE CHAINS control all the movements to knit sweaters. The draw-thread knife is operated by the inside chain and is the only yarn cutter.

CAM SECTIONS are identical to those from regular yard-goods machines. Colored marks on the dial ring help knitters to change machines rapidly.

yarn carriers on long-needle feeds outward away from the needles. The yarn is guided into the next yarn carrier, and 1x1 rib is knitted on the short needles only with two yarns.

Several antirun courses are made before the draw thread is inserted to separate the sweater lengths. One feed is used to insert the draw thread, and another feed is used to cast off the stitches for separation. During the cuff knitting, 15 feeds are in action while 30 feeds are used to knit the interlock body.

Three Chains Control Moves

Three chains on the side of the machine control the complete cycle of movements. The front chain moves the yarn carriers in and out, the middle chain controls the welt cams and the draw-thread knife, and the back chain controls the stitch-cam adjustment. The chain is racked each revolution of the cylinder.

Changes of stitch take place opposite the chain position, and 2¾ ins. of cylinder are almost without needles at this point.

The draw thread is securely locked at the change-over position because it is knitted on several short needles that are grouped together. Latch guards are built to keep the latches from breaking if the yarn should press off at one feed. A latch opener makes certain that all needles are clear to take the yarn before the long-needle yarn carriers are swung back into action to knit interlock stitch.

High-bulk and regular Orlon yarns, ranging from 1/20s to 1/34s worsted are run on the 13- and 14-cut machines. When styles or yarns are changed, the dial is adjusted by the knitter according to a color on the order ticket.

The dial adjusting ring has several different-colored marks on its circumference. The color that corresponds to the ticket colors is turned to the pointer, the ring is locked, and the machine restarted. The system is not only quick and foolproof but saves valuable fixer time.

High-bulk yarns are knitted with a slightly looser cuff than regular Orlon. All cuffs are knitted tighter than the bodies. To simplify this adjustment, the stitch-cam locks are painted red and blue and only the cams controlling the short needles are adjusted when an adjustment is indicated on the order ticket.

Colored paint marks are also used on the dial to save time in the cutting room by indicating cutting marks for bodies and sleeves. Dial needles are removed opposite the painted marks to produce a suitable cutting line.

Three Machines Per Knitter

One knitter operates three machines on each shift, while one mechanic services the same number of machines but works on the day shift only.

All machines have oil cups to lubricate the dial and cylinder needles. These cups are filled at the end of every roll of cloth. The needles are saturated each week with oil and blown out with the air gun.

Double-tied cones are used on all machines; so the yarn on each machine lasts about 4 hrs. The weight delivered by each machine is about 20 lbs. per hr.

A blowing-off unit on each machine is set to operate every 2 mins. for 10 secs. A Veeder-Root counter automatically stops the machine when the required number of sweaters have been knitted.

Eight needle protectors are arranged at equal distances around the cylinders, while top and bottom Wesco stop motions protect against yarn breaks and faults.

Because the machines are equipped with 2-hp. pancake-type motors, they take up little space. One machine occupies 25 sq. ft.

How To Dye
ACRILAN-WOOL BLENDS

Here are practical plant methods and some of the most suitable dyes that will produce on Acrilan-wool blends—

- Good union dyeings
- Cross dyes
- Resist effects

By **WALTER H. HINDLE,** Chemstrand Corp.

FORMULAS FOR THREE BASIC SHADES

Black	4% Emulphor ON	(G.D.C.)
	5.5% Neolan Black WA Conc	(Ciba) 10 to 120 mins.
	0.3% Wool Fast Orange GA	(G.D.C.)
	5% Peregal TW	(G.D.C.)
	4% formic acid. Raise to boil 30 mins.	
	4% sulfuric acid. Boil 30 mins.	
	4% sulfuric acid. Boil 120 mins.	
Navy	2% Emulphor ON	(G.D.C.) 10 to 120 mins.
	4% Gycolan Blue 3RL	(Geigy)
	0.8% Genolan Brill. Blue B. Conc	(G.D.C.) 10 to 120 mins.
	1.5% Neolan Bordeaux BE	(Ciba)
	0.4% Vitrolan Orange R	(Sandoz)
	3% Peregal TW	(G.D.C.) Raise to boil 30 mins.
	4% formic acid	
	4% sulfuric acid. Boil 30 mins.	
	4% sulfuric acid. Boil 120 mins.	
Cocoa Brown	2% Emulphor ON	(G.D.C.) 10 to 120 mins.
	1.5% Polar Brown 2GL	(Geigy)
	0.9% Neolan Brown GR	(Ciba) 10 to 120 mins.
	0.6% Vitrolan Orange R	(Sandoz)
	1.1% Chromolan Grey G	(National)
	4% Peregal TW	(G.D.C.)
	4% formic acid. Raise to boil 30 mins.	
	4% sulfuric acid. 120 mins. boil.	
	4% sulfuric acid. 30 mins. boil.	

In a previous article [TW, Feb., '56, p. 101] the author described in some detail the theory behind the development of the dyeing methods now working well on a plant scale

Two main systems have been considered in dyeing 50-50 blends of wool and Acrilan: First, a system whereby the dyeing rate of the wool was retarded by means of a leveling agent; and second, a method of deliberately exhausting the dyestuff onto the wool with subsequent transference of the dyestuff from the wool to the Acrilan by adding sulfuric acid.

The first method appeared to be quite practical in light and light-medium shades, but the color yields were of a low order. Furthermore, the types of dyestuff used had to be limited to those that would withstand the effect of sulfuric acid in the early stages of the dyeing operation.

With these limitations in mind, it appeared to be the more-practical idea to persevere with the second approach in which the dyestuff was deliberately exhausted onto the wool component of the blend in the initial dyeing phase. It was thus possible to use a wider range of dyestuffs, including those chrome dyestuffs that are sensitive to sulfuric acid when in solution and that exhaust substantially onto wool from weak acid. The same situation applies also to many neutral-dyeing acid colors that may be sulfuric-acid sensitive.

Two Steps Required

The dyeing of Acrilan-wool blends into union shades therefore falls into two steps: (1) the exhaustion of the wool dyestuff onto the wool component, and (2) the subsequent transfer

of that dyestuff onto the Acrilan in the second phase by the addition of sulfuric acid to the bath in which the cation-transfer material is present. A typical procedure is as follows:

After the goods have been prepared for dyeing, 2% of a nonionic such as Emulphor ON (G.D.C.) is added to the bath and the goods are allowed to circulate for 10 mins. at 120° F. The required dyestuff, dissolved conventionally, is then added to the bath and circulated for 10 mins. The cationic material, in amounts depending on the shade, is then added together with 4% formic acid. The temperature is then raised to the boil over 30 mins.

At this point 4% owg. sulfuric acid is added and the dyeing continued for 30 mins., when an additional 4% owg. sulfuric acid is added and the dyeing allowed to continue for 2 hrs., or until equilibrium between the Acrilan and the wool has taken place. Additions of dyestuff for shade adjustments are made conventionally.

However, if tonal correction is required, the dyeing temperature should be lowered to reduce the transferability and render the wool component fully maneuverable. At the conclusion of the dyeing period, the goods are cooled back slowly, rinsed, and neutralized at 90° F. in sodium bicarbonate. In the case of dark shades, it is customary to scour lightly at 120° F. to give good washfastness.

The following is a list of commercially obtainable materials that are effective in promoting transfer of dyestuffs from wool to Acrilan:

Nopcotex A
(N.O.P.)
Atlas G263
(Atlas)
Peregal TW
(G.D.C.)
Decomine
(Arkansas)

The following table shows how Peregal TW may be adjusted in relation to the depth of shade to promote optimum transfer:

% Dyeing	% Peregal TW
0.5	2
1.5	3
3.0	4
5.0	4

Typical formulations for union-dyeing Acrilan-wool blends are shown in the accompanying table.

Chrome dyestuffs are applied by essentially the same technique. The after-chroming takes place in a second bath using half as much bichromate as dyestuff but not less than 0.3% and not more than 2.5% in the presence of 3% formic acid for 1 hr. at 210° F. After chroming, the goods are washed and neutralized.

Acrilan-Wool Union Dyeing By Different Methods

Because many acid dyes are deficient in lightfastness when used on Acrilan, it is advisable for men's-wear specifications to change the dyeing technique from the transfer system to the conventional acrylic-wool technique. Basic, or mixtures of basic and dispersed acetate dyestuffs, are employed on the Acrilan in conjunction with the neutral-dyeing premetallized dyes for the wool in the presence of an antiprecipitant such as Peregal TW (G.D.C.).

The dyeing is carried out at 205° F. at a pH of 5.5 brought about by the use of 5% ammonium acetate. Shades can usually be matched in 2 to 3 hrs., and color matching is complete only after a post-dyeing scour at 120° F. in Igepon T to remove possible wool stain. Lightfastness is usually of sufficient quality to meet men's-wear specifications.

The following is a typical formulation in this shade area:

Light Tan

2%	Peregal TW—10 mins. 120° F.
5%	Ammonium acetate
0.13%	Sevron Blue B. Raise to boil 45 mins.
0.042%	Sevron Blue 2G. Boil 60 mins.
0.092%	Celliton Fast Pink RFA
0.162%	Celanthrene Fast Yellow CL 300%
0.11%	Cibalan Yellow 2BRL
0.06%	Cibalan Bordeaux GRL
0.07%	Neutral Grey L
Rinse	
Scour:	2 grams per liter Quakestrol (Quaker) 20 mins. at 120° F. 1.5 g.p.l. soda ash

The following is a list of basic dyestuffs showing minimum stain on Acrilan-wool blends:

Genacryl Yellow 3G
Sevron Yellow R
Sevron Orange L
Sevron Brill. Red 4G
Genacryl Pink G
Sevron Blue B
Sevron Blue 2G
(Diorlene Blue 5G only when required for depth or correction of light change.)

How To Get Acrilan-Wool Resist Effects

Because Acrilan dyes readily with wool dyestuffs, it appears somewhat contradictory to state that wool can be dyed to resist Acrilan completely. This effect is accomplished by filling the available dye sites of Acrilan with a white dyestuff such as is conventionally used to resist nylon and which has little effect, if any, on the dye absorbency of wool. Nylon Resist Salt (G.D.C.) performs well in this respect. The dyestuffs for the wool are selected from those that will exhaust at a temperature around 185° F. from weak acid.

A typical formulation for Acrilan white-wool brown is as follows:

Pretreat the scoured goods with 3% Nylon Resist Salt (G.D.C) or Erional N.W. (Geigy) for 20 mins. at 160° F.; add dissolved dyestuff together with 2% Palatine Salt O and 4% formic acid, raise slowly to 200° F., and dye for 45 mins. at 200° F.; then add another 4% formic acid and continue dyeing another 45 mins. Rinse well.

Wool brown		
Neolan Brown R	(Ciba)	1%
Neolan Violet Brown B	(Ciba)	.30%

For superior colorfastness, chrome dyestuffs may be used to advantage in dyeing wool and leaving Acrilan white.

Acrilan-Wool Cross-dyeing

Acrilan and wool may be piece-dyed into a full range of two-color effects by combining steps previously mentioned. The Acrilan component may be dyed into a full range of shades with selected basic and acetate dyestuffs. If the wool component is to be dyed a light shade also, the wool may then have to be cleared by the recommended clearing scour. If the wool component is to be dyed a dark shade the clearing may not be necessary.

After the Acrilan has been dyed, it is then resisted against further dyeing by a treatment with Nylon Resist Salt (G.D.C.) and the wool is dyed by the method described for wool-dyed, Acrilan-white effects.

A typical formulation for a wool-navy, Acrilan-cerise shade would be as follows:

2%	Peregal TW
5%	Ammonium acetate—10 mins. at 110° F.
0.2%	Sevron Red L—120 mins. at 210° F.
0.3%	Genacryl Red CB
	Reduce temperature to 160° F. and add
3%	Nylon Resist Salt—30 mins. at 160° F.
1%	Gycolan Navy Blue 2RL
0.5%	Neolan Blue 2G
4%	formic acid—60 mins. at 200° F.
4%	formic acid—30 mins. at 200° F.
	Rinse

NEW LOOMS at Spartan Are in the Basement

A new weave room at Spartan Mills, Spartanburg, S. C., features—

- Latest developments in looms and accessories
- Streamlined operation and maintenance schedules
- A single-weave corduroy producing unit

By **WILMER C. WESTBROOK,** Assistant Editor, TEXTILE WORLD

NEEDING SPACE to enlarge its weaving operations, the engineers at the Spartan Mills, Spartanburg, S. C., started digging. The result of the digging is an up-to-date weave room in a former basement. The room contains 200 45-in. Draper Model X-2 looms of the latest type and some auxiliary equipment such as quillers and quill cleaners. Started in December, 1955, the looms were producing at 90% efficiency after three months of operation.

The looms are powered with 1-hp. Draper-Diehl drives and operate at a speed of 184 ppm. The let-off motions are the No. 4 automatic Bartlett, and the No. 89 high-roll ratchet-type take-up is used. The looms are equipped with clock-spring tops and center forks. Other up-to-date features of the looms are the No. 25 Stafford thread cutters and the No. 498 temples.

The electric warp stop motions are six-bank, but only four banks are being used for present weaves. The looms have not been in operation long enough for any accurate supply-cost figures, but the endless leather checkstraps and the fiber-covered shuttles are giving good service. The loom number is stamped inside each new shuttle when it's put in the loom, and records are kept to control this supply item.

Weaving Corduroy

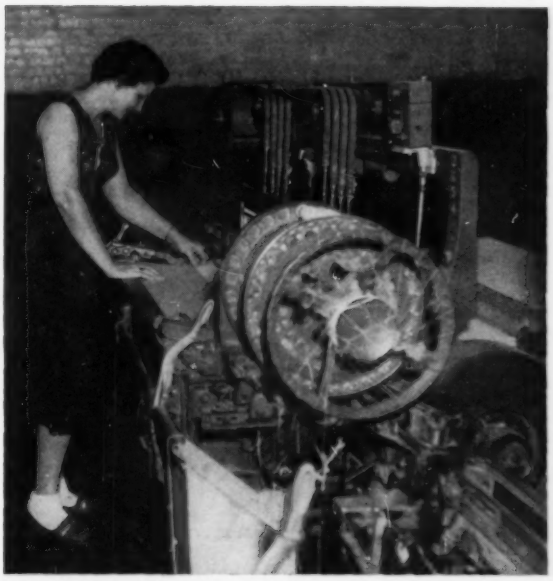
The 200 looms in this new weave room are all weaving one style of cloth: 1.94 wt. corduroy. Construction is standard for this type of corduroy.

Draw-Tex harnesses are used, and drawing in is done by machine. Warp tying is done at the loom with a Barber-Colman 56-in. MC portable tying-in machine. Two racks are used; one of the racks is loaded while the knotter is tying a warp. The knotter is then moved to the waiting rack, and the vacated rack is moved to another loom and loaded.

By the use of two racks and almost continuous opera-

BASEMENT WEAVE ROOM at Spartan has 200 45-in. X-2 looms, all equipped with Draper-Diehl drives. Here the room is inspected by Overseer J. W. Jamison (right) and Assistant Overseer Charles Jordan.

THE X-2 LOOMS are on 1.94 corduroy. The 45-in. looms have Draper-Diehl drives. One of the looms is checked by Loomfixer James Guy.



WEAVER Mary Haulbrook tends looms that run at 184 ppm. After three months of operation, the looms were producing at 90% efficiency.

tion of the knotter, a loom is out of production only about 90 mins. for a warp change. Of course, there are times when the tying-in machine is not in operation because each warp runs for about 10 weeks.

The loomfixer does not do any of the warping, but it is his responsibility to maintain the mechanical parts of the Diehl drives.

Because of the long running time of the warps, a rigid lubrication schedule is maintained. The main bearings, gears, cams, and pick-motion parts are lubricated twice a week and all other parts once a week. The looms are thoroughly cleaned and lubricated at warp-out. Loom cleaning other than at warp-out is done on the second and third shifts. Each loom is cleaned with compressed air every 16 hrs. Overhead cleaning is done weekly.

Lighting for this weave room is provided by continuous-row, in-line fluorescent units. Bahnson central-station air-changing and humidity systems are used. The supplementary atomizers of the humidity system are centrally controlled, and the temperature and relative humidity in the room are recorded on a chart. The normal operating temperature of the room is kept at 82°F. with a relative humidity of 84%.

One advantage of a basement weave room is the vibrationless floor. When the excavation was completed at Spartan, a concrete base was poured and topped with asphalt. A double-deck wood subfloor was then laid and the hardwood flooring nailed to the subfloor. The result is a firm, steady, level floor. The floor has been sanded, sealed, and varnished. Supporting columns for the floor above are steel I-beams.

BATTERY FILLER TRUCK is used by Dorothy Johnson to fill batteries.

Some Training Necessary

The looms installed in the basement weave room at Spartan have some features not found in other looms in this mill. Consequently, some employee training was necessary when the looms were put into operation. Most of the loomfixers learned the finer points of center-fork and Diehl-drive repair and maintenance from the factory installation and servicemen.

For some of the weavers, it was quite a step from belt-driven side-fork looms to the high-speed X-2-model looms. Some training and orientation was necessary to fit the weavers to the new looms.

There are many advantages to a basement weave room, such as:

1. It is not necessary to acquire additional land or locate the room a distance from the preparatory departments or other weaving units.

2. The roof is already built; it is only necessary to construct the floor and part of the walls.

3. It is possible to have a firmer floor, free of vibration, and one that will not develop high and low places under the loom feet.

4. There are no windows and no outside walls exposed to sun and cold; it is easier to maintain uniform temperature and relative humidity.

Problem — Heavy Yarn
Solution — Decrease Break Draft

• The solution to this spinning problem sounds simple, but the knitting-yarn mill involved didn't find it so. A lot of hard work, testing, and study were necessary before the right answer came up. Here's how the mill did it—

By ROBERT MAIN

ONE OF THE COUNTRY'S most quality-conscious mills recently received complaints from knitting-mill customers that heavy yarn was causing seconds on 64-needle knitting machines. The trouble was too much back draft on the spinning frame, but locating and correcting the cause of the heavy yarn was no simple matter.

Here's how the mill went about solving the problem:

First Attempt—Failure

First attempts to locate the cause of the heavy yarn included daily sizings of picker laps, card sliver, comber sliver, breaker- and finisher-drawing sliver, roving, and yarn. These tests indicated that unusually close tolerances were being maintained at each process. At the same time, all supervisors started an intensive program to eliminate doublings caused by poor workmanship and bad piecings. Still the complaints that yarn was too heavy continued to come in.

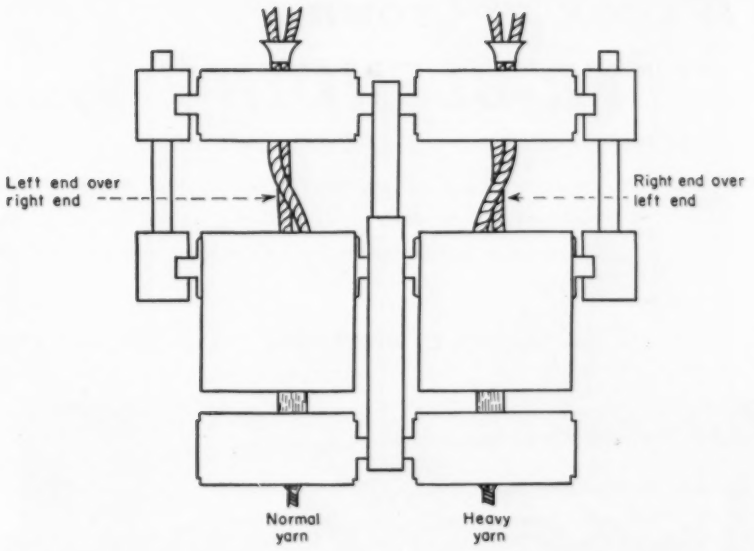
At this point, the mill decided to intensify the study. Finisher-drawing sliver was weighed twice during the doffs until 108 full cans considered acceptable were made. The 216 sizings ranged from a minimum of 54.5 grains to a maximum of 57.5 grains. The sliver was made on Saco-Lowell three-over-four drawing, six-ends-up.

Second Attempt—Failure

Next, the sliver was made into 512 bobbins of 2.00-hk. roving to supply a complete spinning frame for creeling. Each bobbin of roving was sized, and tolerances of 0.08 hk. ± were adopted.

Only five bobbins of roving tested were rejected for size. All the rejected bobbins were on the light side and traceable to singlings at the drawing frame.

The roving, which was being made on Saco-Lowell 10x5 FS-2 roving frames, showed an average maximum Uster variation of 20%. This test caused the mill to conclude that the



CROSSED ROVING may cause a heavy end of yarn if the right end crosses over the left end as the two ends emerge from the back rolls. This crossing adds false twist to the roving and causes it to pull through the rolls without drafting in the back zone. On the other hand, if the left end crosses over the right end, no trouble results because twist is taken out.

heavy yarn was not being made at the roving frames.

A control lot of roving was double-creeled into a Saco-Lowell Duo-Roth spinning frame, and 35s yarn was spun. The yarn was sized after the frame had run ½ hr., and each bobbin was put back on its original spindle. The yarn was then resized every 3 or 4 hrs. until time to doff; doffing interval was about 18 hrs. About 4% of the bobbins sized 27s, 28s, and 29s, instead of 35s. The several sizings indicated that certain spindles producing heavy yarn had a tendency to be consistent, although this tendency was not 100% consistent.

A Clue—

While a supervisor was looking at one of the spindles spinning yarn consistently heavy, he made an observation that resulted in ultimate correction of the trouble. He noticed that in each instance the right-hand strand of roving as it emerged from the back rolls was crossed over the left-hand strand. This condition was reproduced on 312 spindles; and the investigators found that between 8 and 9% of the bobbins sized from 27s to 29s. The fact that heavy yarn did not occur in every case was confusing, but the frequency of heavy yarn was greater.

Next, yarn from 600 spindles was tested with the rovings parallel to each other in the break-draft zone. Tests showed heavy yarn only where the roving became twisted, right-over-left, during manufacture. The roving on these 600 spindles was then purposely crossed right-over-left, and tests showed that between 8 and 9% of the bobbins were heavy.

Progress—

Armed with these facts, the mill attempted to learn why roving twisted in this way causes heavy yarn. The next discovery was that when roving is twisted one-half turn to the left, false twist is inserted in much the same way that a folding trumpet on a roving frame puts in twist. Conversely, when roving is twisted to the right, twist is removed.

The heavy-yarn bobbins were larger in diameter than the normal bobbins, and they weighed more. The conclusion was that more roving was being fed to the spindles making the heavy yarn. This fact was proved by marking the roving as it crossed the roving rod and measuring the length fed to a heavy end as against a normal end. From 1¼ to 2 ins. more roving was fed into a heavy end in a space of 15½ ins., the distance from the roving rod to the back rolls.

The indication was that the middle rolls were pulling the roving through the back rolls without drafting when the roving was crossed right-over-left. The only explanation as to why every end of twisted roving was not heavy is that at times the twist was broken. This broken-twist roving made a normal yarn until it started pulling through the rolls again.

More Problems—

Now the mill was faced with the problem of how to correct the trouble. The use of divided trumpets was not practical because of operational difficulties and cleaning problems. The setting between the back and middle rolls could not be opened because the stands were not adjustable. Additional back top-roll weight was decided against because there already were 16 lbs. on the back rolls.

The back draft was increased from 1.40 to 1.70 with no improvement. The roving twist multiplier was then reduced from 1.29 to 1.21—again with no improvement. Less twist could not be put in the roving because of the roving-spindle speed, overhead blowers on the spinning frames, and the roving-package size.

Success!

Finally, the back draft at the spinning frames was dropped from 1.40 to 1.10, which in effect provided a one-zone drafting system with two lines of rolls to hold the roving. The low back draft minimized the effect of twist that was not broken in the break-draft zone.

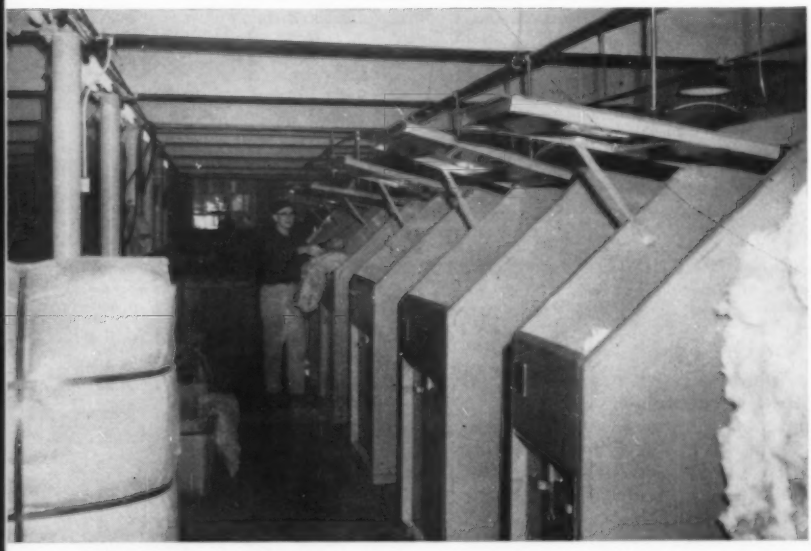
Since adopting a low back draft, the mill has not found a heavy bobbin of yarn in more than 1,000 bobbins checked. The maximum variation of the yarn as determined from the Uster evenness tester consistently runs between 70 and 75%; and the frames are running with about 15 ends down.

Elimination of the heavy yarn made it possible for the mill to adjust picks and to change lay gears to fully utilize the 9½-in. traverse and 2½-in rings. Previously it had been impossible to fill up all the bobbins.

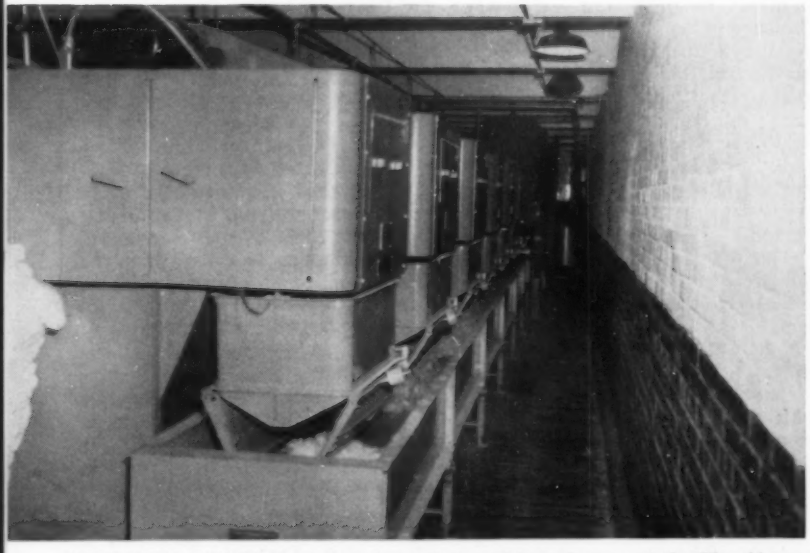
A Look at Crown's FIBER-BLENDING System

• Automatic, continuous-process opening and blending of various fibers is possible with mechanical units installed in this Dalton, Ga., mill. Improved yarns, increased production, and better-quality products combine to pay for the system in less than a year.

By **WILMER C. WESTBROOK,** Assistant Editor, TEXTILE WORLD



FEEDING OF SYNTHETIC stock is to Fiber Meters that deliver predetermined amounts of opened stock.



HORIZONTAL CONVEYOR receives the stock from delivery hoppers of the Fiber Meters.

CROWN COTTON MILLS, Dalton, Ga., was having fiber-blending troubles. The problem was particularly vexing because of the variety of fibers used and the large number of standard mixes needed in routine production. Some of the most common faults were uneven yarns and filling bands that showed up in the finished cloth.

Diagnosis showed a need for more-precise blending of the raw stock, and mechanical blending seemed to be the answer. A battery of Dodenhoff Fiber Meters with complete auxiliary equipment was installed in Crown's cotton mill. The cotton-blending system gave such good results that similar units were installed in its synthetics mill.

The blending systems do not require manual labor other than loading the hoppers of the Fiber Meters and routine cleaning and maintenance. However, the installations were not made primarily to cut labor costs. Emphasis has been placed on improvement of quality and more-efficient operation. Such improvement is seen in all processes throughout the mills in the form of better-running work and quality of the finished product.

To quote Crown's president, David Hamilton: "We are well pleased with results obtained through the use of our new blending systems. The blending units will pay for themselves in less than a year through savings in waste, in better-quality products, and in increased production."

Makes Yarns for Chenilles

The cotton mill, located in Dalton, some distance from Crown's synthetics mill, makes 2s, 8s, and 10s yarns. The yarn is used in the manufacture of rugs and other chenille products. One-inch-staple cotton of various grades goes into the production of this yarn.

The cotton-blending system consists of six Fiber Meters with horizontal conveyor, two blenders, a premixer, and a vertical opener. Cotton is dumped into the receiving hoppers of

the Fiber Meters and is not touched again by human hands until it comes out of the pickers in the form of laps.

A typical mix is 28-oz. cotton from each of the first two units, 20-oz. cotton from each of the next two, 19-oz. cotton comber noils from the next unit, and 10-oz. reworkable cotton waste from the last one. Normal delivery is at the rate of 116 oz. every 25 sec., or about 1,000 lbs. per hr.

In processing, the cotton is dumped into the appropriate receiving hoppers of the Fiber Meters and the discharge hoppers release the stock in predetermined quantities onto the conveyor. The fibers pass through a blender, a premixer, another blender, and through a vertical opener to the picker room on the floor above.

The Fiber Meters feed the staple into the line in exact quantities; and although the rate of delivery is set individually at each unit, the entire line is centrally controlled. If one of the units fails to operate, the entire line is stopped automatically and improper blending is prevented. Green running lights and red discharge and trouble lights keep the operator aware of the operating status of each unit.

Blends Nylon Staple

At Crown's synthetics mill, various types and blends of fibers are processed. Some of the yarn is used in the manufacture of chenilles, but most of it is woven into cloth by the 866 looms in this mill. There are six Fiber Meters, but the layout of auxiliary equipment is different in the synthetics mill from that of the cotton mill.

The staple moves from the Fiber Meters by way of a horizontal conveyor into an inclined conveyor opener and premixer. The stock then passes through a blender and into a hopper of the Unitint machine, a spraying apparatus that sprays oils, water, or fugitive tints onto the stock.

An installation of six stainless-steel drums is used with the sprayer at Crown. Each of the drums has individual pressure and volume controls so that a given amount of any liquid or a combination of liquids can be sprayed onto the stock as it passes through the machine.

Stock Is Baled

From the Unitint machine, the stock goes into a reserve box and then is gravity-fed into the chamber of a double-box press on the floor below. When 500 lbs. of stock accumulates in the box, an operator pivots the boxes. The full box swings into position under the hydraulic press, and the box that has just been emptied takes its

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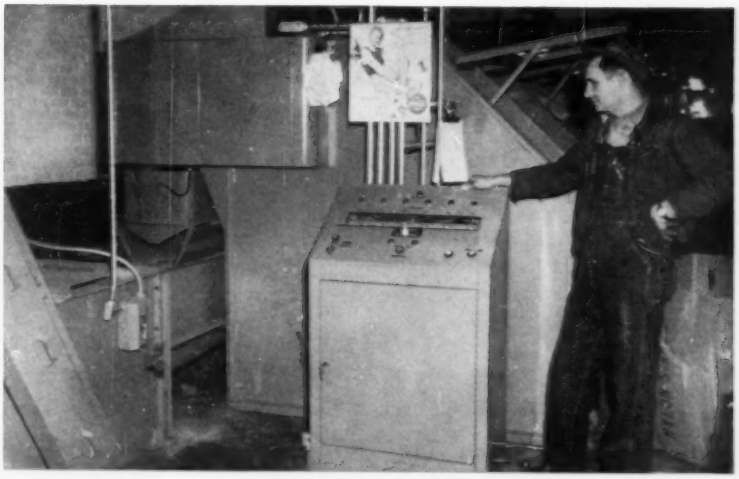
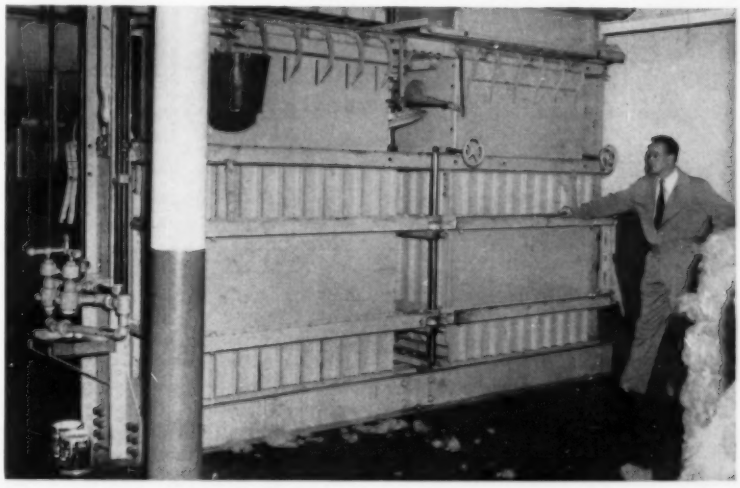
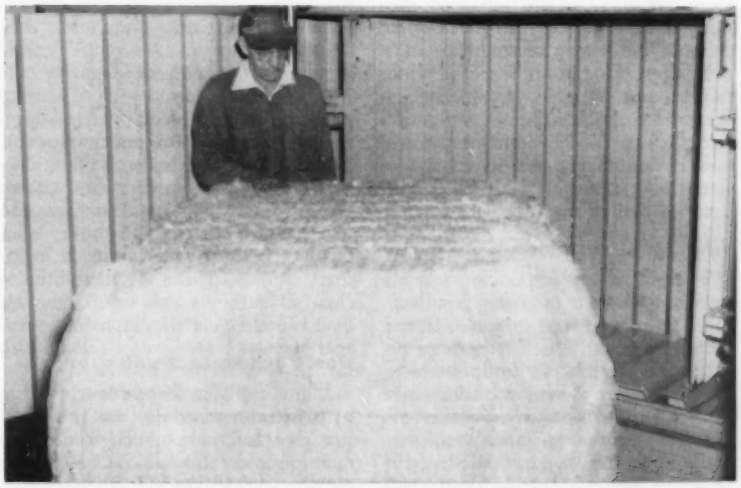


CENTRAL CONTROL regulates the amount of fiber delivered by the meter hoppers to the conveyor.



A DOUBLE-BOX PRESS is used to bale the synthetic fiber after it has been tinted.



BATCHES of the various components are uniformly spaced in the bale. The bale will be stored for at least three days.

How To Make Better LOOM STUDIES

Loom-stop checks are often made uselessly. But they can be of great value in improving weaving conditions if they're properly planned and made. To be of value, a loom-stop check must be—

- **Accurate**
- **Complete**
- **Logical**
- **Needed**

By ERNEST R. BECKNER

MOST MODERN MILLS have weaving studies made almost every day, but the studies are actually a sampling or bird's-eye view of the weave-room operation. A weaving operation is an up-and-down job. During one period of 3 mins., all the looms in a weaver's set may be running; and during the next 8 mins., six or more looms may be stopped.

Random studies in a weave room can be just as effective as checking random samples from a production line. You look over these studies and assume that they are representative of actual conditions on a set of looms, but they may or may not be.

Why Make Studies?

The real reasons for making weaving studies vary from following a custom to a desire to establish jobloads and piecework rates. When seconds go up, you make studies to find out why. When they go down, you also make studies to find out why. When efficiency is down, you make studies to determine the cause. When efficiency is up, more studies are made to find out why. Other studies are made to keep everyone on their toes, or for experiments.

Sometimes the studies are not worth while. Almost 75% of all weaving studies made accomplish nothing useful. Many times the observer's assignment is: "Pick out the worst set of looms and study it," or "Let's cover the entire weave room this week." Such studies are only a nuisance; they frustrate the observer and annoy weave-room employees.

The weaving study with a definite purpose is a valuable tool for management men and is a sound investment. Studies to set workloads, establish piecework rates, pinpoint the sources of high seconds or low efficiency, and to evaluate new yarns, finishes, loom settings, or new gadgets are all legitimate studies. However, these studies also fail if they aren't valued enough or don't receive a thorough follow-up.

Don't Schedule Studies

Many mills make weaving studies by a definite schedule, but this practice is a bad one. Since studies are mere samples, they should be random samples so that they will be representative.

If weavers and loomfixers know their jobs will be studied at a predetermined time, they will work hard to get the jobs in good shape for the observer. Then what the observer sees are not actual conditions. After the observer is gone, the weaver and loomfixer will likely relax their efforts and the job will return to the original condition that called for the study.

But on the other hand, if there is an established policy to make studies at random times, workers constantly expect them and stay on their toes all the time. It is much more convenient to make studies on the first shift only, and about 95% of all studies are made on the first shift. But studies should be made on all three shifts.

There are two basic techniques for making weaving studies: (1) the direct method, and (2) the ratio-delay method.

With the direct method, the observer stays with the weaver for a definite length of time. The observer records (1) everything the weaver does, (2) all the cloth defects seen, (3) all the mechanical imperfections of the loom, and (4) all bad quilling, warping, etc. This technique is recommended for pinpointing trouble on

LOOM-STOP CAUSES are recorded in detail on the chart so that steps can be taken immediately to prevent excessive stops.

YARN-BREAKAGE FAULTS are quickly analyzed by the observer. He follows up the faults with the yarn-preparation department.

one set of looms, for timestudies to set workloads and piecework rates, and for evaluating experiments on a small scale when they are confined to one set of looms.

Experienced Observer Needed

A well-qualified observer is needed for the direct-method study. He should know something about slashing, quilling, weaving, and the mechanics of looms. The length of this study is not more than 2 to 4 hrs., because the observer becomes fatigued; then he skips over many things he should observe and record. If 8-hr. studies are necessary, use two observers and let them alternate at 2-hr. intervals.

If all plants in a chain of mills make studies of uniform length, the studies can be compared. The 2-hr. study is the shortest practical time period, and two of these studies can be made and summarized in an 8-hr. day.

If the loom efficiency during a 2-hr. study is not close to the over-all efficiency for the shift on the set of looms where the study is made, don't be alarmed. Any 2-hr. period will not show the true efficiency for an entire 8-hr. shift.

Ratio-Delay Method

The ratio-delay technique consists of (1) making complete circuits of all weaving areas at random times, and (2) recording the status of each loom as the observer comes to it. This technique should be used where there is no particular localized problem, where the check is made to keep informed generally of weaving conditions as a whole, and to check weaving timestudies and workloads.

If made under proper conditions, this method of making studies will give you a fairly accurate report of efficiency. If you make, say, 15 circuits per week of all weaving areas and come up with only an efficiency figure that is close to the actual efficiency, the check tells you only what you already know from other records. But the efficiency figures do prove the accuracy of the study.

From this study, you can proceed with confidence to determine how many efficiency points were lost from warp-outs, break-outs, and filling or mechanical stops, etc. And since you know, from the cost department, how much each efficiency point costs in direct, indirect, and overhead cost, you can easily arrive at the cost of warp-outs, break-outs, etc. without timestudies. You also have a fair appraisal of the quality of work done by the preparation department.

By applying a few simple statistical rules to the ratio-delay method, you can determine the degree of accuracy and margin of error. But you cannot use statistical rules with the direct method or with timestudies.

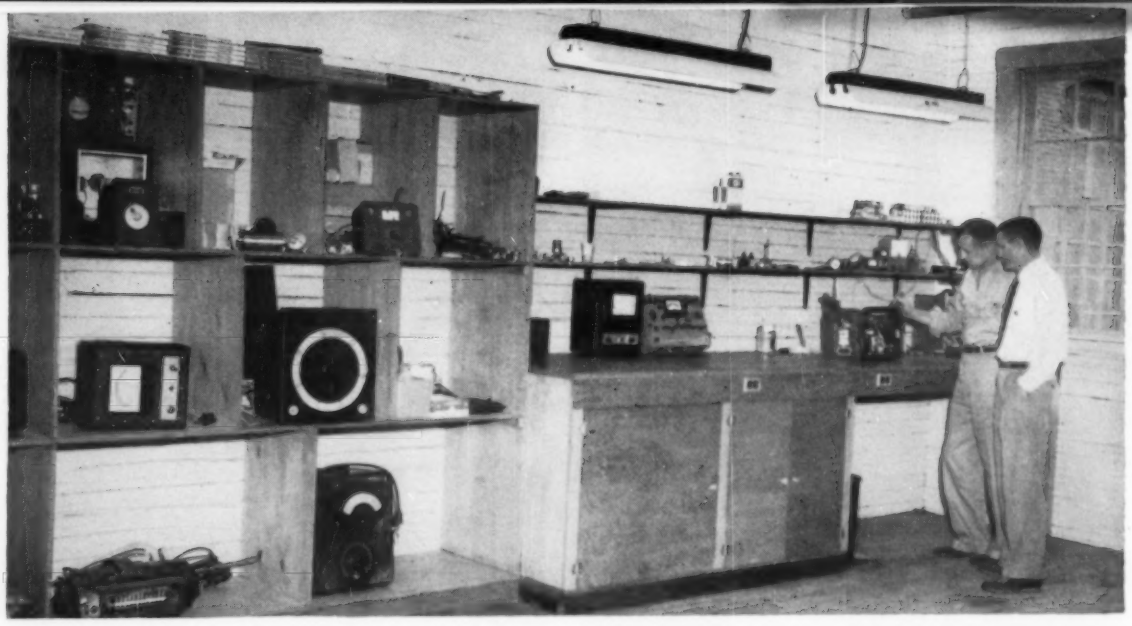
Making the Direct Study

When you use the direct-study method, you must first know which set of looms you are going to study, and exactly why. If the study is to evaluate an experiment, find out all you can about the experiment. If the study is for low efficiency, then look for anything that will cause looms to stand longer than usual.

If your study is for quality, look at some pieces of seconds from the set of looms and note all weaving defects at the loom and poor weaving and loom-fixing practices. If the defects seem to come from other departments, follow the yarn back after the study is completed and pin down the cause. Have the observer do the whole job himself and get it over with; if he does not, delays and face-saving may result and the problem is not solved.

Send the observer with the weave-room overseer or foreman to the weaver. Let the observer listen while the overseer explains the work to be done and that the weaver is to work normally and follow standard procedures.

The observer first lists the loom and style numbers on his loom-study chart. It is sometimes desirable to list the warp and filling lot numbers for comparisons later. And just before the study is begun, record the pick-counter readings and the time the study is started.



INSTRUMENT WORKSHOP was the first step in setting up the instrument-maintenance program. Authors James W. Ward (nearest camera) and A. Lee Humphrey are checking a temperature recorder.

Avondale Maintains INSTRUMENTS To Keep Machines Running

In a brand-new maintenance program, Avondale Mills is constantly inspecting and servicing its instruments on production machines. The program involves—

- **Setting up a central workshop**
- **Training men to do the work**
- **Selecting spare instruments and spare parts**
- **Setting up a complete record system**

By JAMES W. WARD and A. LEE HUMPHREY, Avondale Mills

We have four weaving mills in the Avondale group, and each mill has extensive instrumentation on its processing machinery. Production at each mill goes through one or more instruments. Faulty-operating instruments usually slow down a production machine and cause low production and poor-quality yarn and cloth. Therefore, we do everything possible to keep all instruments operating correctly.

Because we have seen the need for a good preventive-maintenance program for our instruments, we have recently started a long-range plan of maintenance. The plan lets us start with the minimum of equipment and work and provides for expansion as we prove the program is worth while.

We have started the maintenance program at the top and will work downward. The program is under the direction of an instrument technician we have trained ourselves. We were not able to obtain an instrument engineer for the job, but we think the technician will be able to do the work of an engineer by the time our basic program is established. He is rated as an engineer.

To fill the job, we found a man in our organization who had done maintenance work on air-conditioning and limited electronic equipment. He was ambitious and interested in this type of work. Placing the man on the job as technician filled the position adequately and also gave a deserving employee a promotion.

When the maintenance program is in full operation, we plan to have an instrument technician at each of the weaving mills. The instrument engineer will train the technicians, supervise their work, keep them posted on new equipment, and keep top management men informed on instrumentation. The instrument technicians' only duties will be to maintain all instruments.

STORAGE AREA in the workshop contains spare instruments and spare parts for each of four weaving mills. A complete running inventory of spare parts is kept for each type of instrument.

The instrument engineer was transferred into the electrical engineering department March 22, 1955. His first duties were maintenance and preventive maintenance of instruments and keeping records of instruments in all plants. He was given a workshop that serves as an instrument supply room, a repair shop, and a place to file records. He was also furnished the testing instruments that he needs.

The engineer was trained by letting him work on various instruments with service men from several manufacturers of instruments. This method of training gave him a knowledge of the instruments and the processes they control or indicate. After this training period is completed, he will be sent to two instrument manufacturers for instrument-repair courses and detailed instructions.

We are still running our old instrument-maintenance system. Electricians at two of the plants divide their time between maintaining instruments and many other jobs. In the other two plants, the chief electricians maintain the instruments. All of these electricians are assisting the new engineer in starting him correctly. They still make minor instrument repairs and inform the engineer of all work done.

Set Up a Workshop First

The instrument shop was started from scratch in an empty room. Storage shelves and a workbench 12 ft. long, 3½ ft. high, and 3 ft. wide were built. The testing facilities are arranged around the workbench.

Duplex electric outlets are installed on the front of the workbench and on the wall behind it. These outlets facilitate checking instruments because the wall outlets are used for the testing instruments and the workbench outlets are used for the instruments being tested.

A compressed-air line with a pressure regulator and a filter is located near one end of the workbench to check pneumatic instruments.

The storage bins are constructed as divided shelves along the wall by the workbench. The bins are of different widths to store large and small items.

Because testing and repairs can be made accurately only if adequate testing instruments are available, we selected our instruments carefully. We have the following equipment in the workshop: (1) an oscilloscope, (2) a vacuum-tube voltmeter, (3) center-reading milliammeter, and (4) electronic tube tester. We also use a Simpson milliammeter-voltmeter-ohmmeter, since one of these instruments is located in the electrical department of each mill.

The oscilloscope is used on all electronic equipment to determine if the correct signal is being obtained. It is being used primarily on electronic amplifiers.

The vacuum-tube voltmeter is of great value in making electronic repairs.

The center-reading milliammeter is being used on the electronic circuits of weft straighteners. It indicates the direction of current through a circuit.

Testers Aren't Final

The electronic tube tester is used, of course, to test most types of electronic tubes. But we have found that our tube tester is not the ultimate test in all instances as to whether a tube is good or bad. We still rely on the trial-and-error method if all tubes tested indicate they are okay but the instrument fails to operate. The instrument manufacturers have explained that they have used a property in some tubes that the tester cannot check, for example, by using the tabulated test data.

We bought the oscilloscope and vacuum-tube voltmeter as kits. Our instrument engineer assembled them in the workshop. As a result, the engineer was thoroughly familiar with these two instruments before they were used on a job.

Our spare-parts inventory was taken from the inventory of the four mills. We took all instruments not being used and many extra parts from the mills. We plan to establish a complete inventory of spare parts. The store of parts will be based on the instruments being used and the frequency of repairs. We will keep a running inventory of the parts.

Records of work being done are kept on Mimeograph forms at present. We hope to replace them with card files in the future. We are using two

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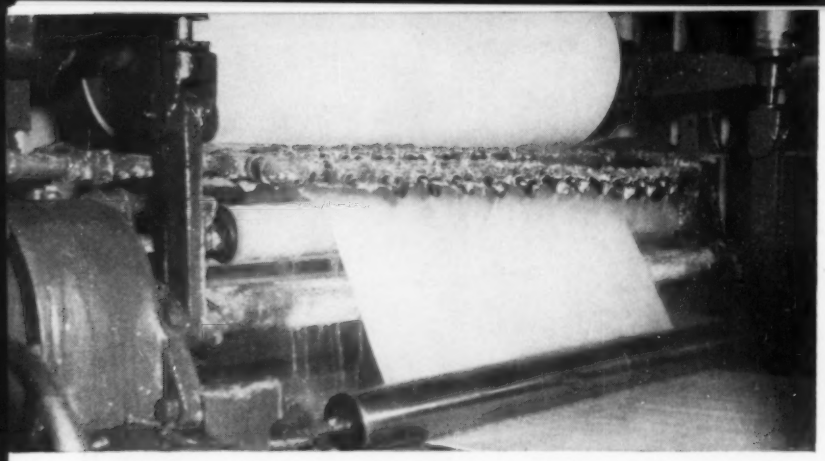
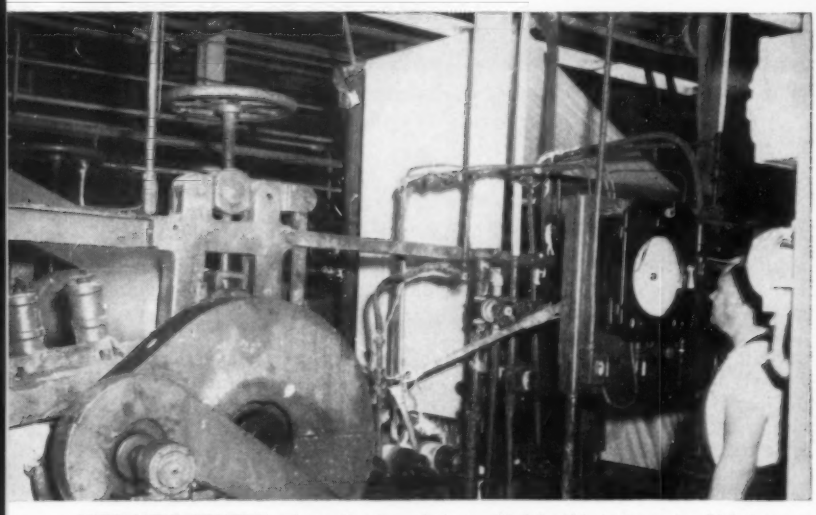
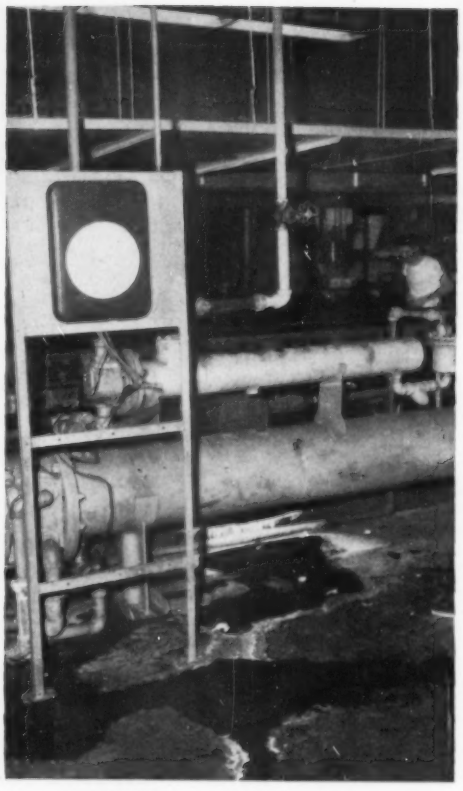


HIGH-PRESSURE JETS of fresh hot water speed up removal of bleaching chemicals at the end of the continuous bleaching range. Attention to details like this spell successful processing.



AUTOMATIC CONTROL of caustic strength is provided by this instrument, which keeps a record of conditions in the mercerizer pad at the same time.



HEAT EXCHANGER removes most of the heat from mercerizer waste water, and the booster (above) brings fresh water to 180° F. for washing.

How CONTINUOUS PROCESSING Works for Cooleemee

A compact layout and continual improvement in processing keep goods flowing smoothly in Erwin Mills' Cooleemee, N. C., finishing plant. The mill was engineered for—

- Continuous processing
- Minimum trucking between processes
- Efficient use of steam

By **ROBERT W. PINAULT,** Assistant Editor, TEXTILE WORLD

ASSEMBLY-LINE methods and advanced chemical processing are used to produce a line of sports and work-clothes fabrics at Erwin Mills' Cooleemee, N. C., finishing plant.

An unusually compact layout of machinery, the results of a modernization program started in 1948 [TW, Aug., '54, p. 71], contributes to the smooth flow of goods and eliminates long-distance trucking of fabric from process to process. Wherever possible, the goods are processed continuously. When it is preferable to break off continuous processing, the goods are dried at that point. An advantage of this system is that there are never any wet goods lying about waiting for further processing.

DRY CANS are mounted overhead to conserve space, which was a problem in this plant.

RUBBER BELTS (arrow) speed up shrinking and give more mileage than felt blankets. Cooleemee has two such units and two with felt blankets.

Preparation Is Continuous

Erwin finishes a line of jeans, twills, and poplins weighing from 1.40 to 2.85 yds. per lb.; and with the exception of goods going into white or very light pastel shades, singeing, boiling off, and bleaching are set up on a continuous basis.

The primary preparation range consists of a caustic saturator, a Mathieson three-conveyor steamer, and a series of wash boxes. Hooked up in range with these units is a peroxide saturator, another Mathieson steamer, and a set of wash boxes followed by dry cans in range. Modifications and improvements in the steamers enable Cooleemee to get a satisfactory bottoming for all but the lightest shades.

The first step in continuous processing is to singe and impregnate the goods with an enzyme that converts the starch to soluble compounds. After about an hour's layover, the goods are run full width into a heavy mangle where they are saturated with a 4% caustic solution and delivered into the top of a Mathieson steamer. Three stainless-steel conveyors carry the goods through the steamer at 212° F. The unit will hold sufficient goods for at least 30 mins. exposure to the steam.

When the fabric leaves the steamer, it is given a thorough washing through a series of wash boxes and then goes into a pad where it is saturated in a ½% solution of hydrogen peroxide. Uniformity of bleach solution, liquid level, and alkalinity of the bleach are automatically controlled.

Concentrated H_2O_2 at 130 vol. is fed to the bath through Milton Roy proportioning pumps. Sodium silicate is also automatically supplied in the correct amounts.

After saturation with peroxide, the goods go into another Mathieson steamer and are maintained at 212° for 30 mins.

Then a final washing and can-drying leave them ready for dyeing.

For medium and dark shades, a progressive jig is used to prepare some styles. In this machine, fabric is run through a boiling caustic solution from one beam to another, moving through eight beams before being delivered to a plaiter. A final run through an open soaper completes this type of processing.

Goods Mercerized Wet

After scouring and bleaching, some styles are mercerized; and when this process follows, the dry cans on the bleaching range are skipped.

Cooleemee mercerizes on tenters, using 40° Tw. caustic soda. A heavy two-roll water mangle precedes the caustic pad to insure even moisture content on every yard of goods. A lot of sound thinking has gone into the mercerizing process, with the result that although most styles are fairly heavy goods, caustic content of the finished fabric rarely exceeds 0.12%. This low figure was attained by modifying a Scott Weir washing system to increase the flow of wash water through the goods and using a conventional recuperator to full advantage.

All wash waters are put through on the counter-flow principle and are led through a heat exchanger. The flow of fresh water is controlled so that the final effluent carries enough caustic to be useful in further processing. The fresh water is warmed through the heat exchanger and boosted to 180° F. before use. Caustic strength is automatically controlled by proportioning valves that mix 50% caustic with water to maintain any desired working strength.

Cooleemee buys 73% caustic and picks up some heat of solution through a heat exchanger as the strong caustic is diluted and transferred from

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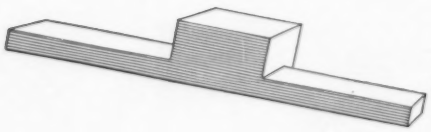
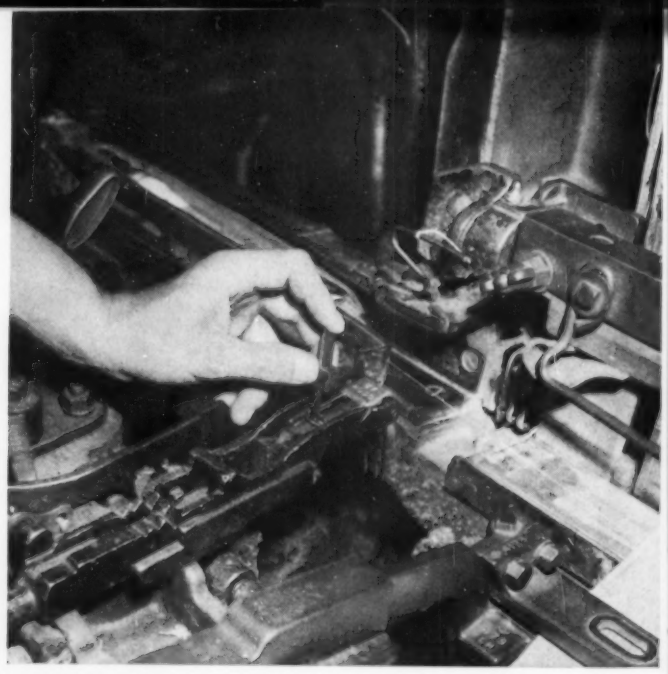


THE MULTIPURPOSE GAUGE (shown actual size) is designed for use in setting and timing numerous parts of a Draper loom.



THE GAUGE, converted from the Draper shuttle gauge, can be used to set and time the filling motion.

Use a Multipurpose GAUGE To Set Loom Parts

• A small gauge that can be carried in the pocket is used to set dozens of loom parts and motions. If correctly and consistently used, the gauge will save repair parts, labor, and downtime.

By **WILMER C. WESTBROOK,** Assistant Editor, TEXTILE WORLD

THE ADVANTAGES of uniform loom settings have long been recognized. However, mere recognition is not enough; to be practical, such settings must be consistently used. The loomfixer and his first-line supervisor must be sold on the idea of using gauges to obtain such settings. Many loom men are definitely opposed to gauges in any form, preferring to use rule-of-thumb methods.

When loom gauges are mentioned, the average mill man thinks of an armful of cumbersome rods, bars, and brackets. Often two or more of these gauges are necessary to set a single loom part.

Dramatic demonstrations of gauge-set looms vs. looms set up in the ordinary manner are usually convincing. To really sell the idea of gauges to a loomfixer, it is necessary to show him that such methods will benefit him personally.

Gauge Eliminates Guesswork

A listing of some of the advantages of uniform loom settings should help put the idea across. Among the many advantages are:

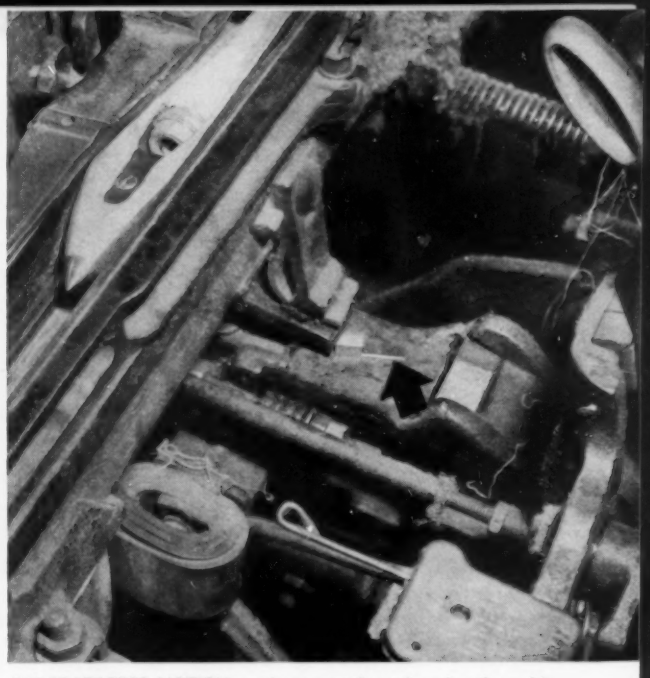
1. The use of uniform settings makes it easier to train new loomfixers.
2. Gauge-set parts operate more efficiently.
3. Parts can be set or timed quicker with a gauge.
4. A gauge takes the guesswork out of setting loom parts.
5. The use of uniform settings for all loom parts eliminates unnecessary work and friction between the loomfixers on the same job but on different shifts.
6. Loom gauges are profitable because of (a) better utilization of the loomfixer's time, (b) reduction of off-quality cloth, (c) increased production, and (d) savings on loom repair parts.

When your car needs repairs or adjustment, you take it to a reliable mechanic who has the right kind of tools and gauges. You tell him what you think is wrong or what part of the car is giving trouble. When you get the car back, you expect it to be repaired and in perfect running condition.

The same loomfixer who is so fussy about his car will go to a flagged loom and get mad if the weaver tries to tell him why the loom was flagged. Then he will use his trial-and-error, rule-of-thumb methods to try and get the loom back in good running condition. Many times a single loom will be flagged a dozen times for the same trouble. This condition causes a loss of production for the mill, loss of wages for the weaver, and extra work and worry for the loomfixer.

When gauges are used, the parts of the loom can be checked in one-two-three order. The parts not broken or

THE MULTIPURPOSE GAUGE can be used, as shown here, to box the shuttle.



THE PROTECTOR MOTION can be accurately set by using the multipurpose gauge.

worn out are not tampered with if the settings are correct. The gauge saves a lot of backtracking and resetting of parts.

All the gauges made for the various makes and models of looms have their uses. However, most of these gauges are designed for the installation of new looms or for new loom parts. It would be impossible for a loomfixer to carry and use all these gauges for routine loomfixing.

The straightedge, the reed square, the pick gauge, and the lay gauge are, of course, gauges familiar to, and used by, most loomfixers. These gauges are more frequently used for major repair and installation jobs and seldom used in routine loomfixing.

Use a Multipurpose Gauge

To obtain the advantages of loom gauges without the burden of carrying an armful of gadgets, a small multipurpose gauge has been designed. A modified form of the Draper shuttle gauge, it can be used to set a number of parts and motions of all E- and X-model looms.

The most outstanding feature of this gauge is that it can be carried in the pocket and is thus instantly available whenever needed. The supervisor can carry one of these gauges, and with it he can quickly and accurately check the settings of any loom in the mill. All the major loom motions can be checked in a matter of minutes and the quality of a loomfixer's work easily ascertained.

Looms are ordered from the manufacturer to different specifications and with various combinations of motions and accessories. Therefore, a gauge that is made for one lot of looms may not be best for another lot, although the looms are the same make and model.

The gauge should be designed for a particular lot of looms in a mill; and these looms should all use the same parts, such as shuttles, binders, feelers, thread cutters, etc. To make a multipurpose loom gauge, the setting instruction sheets should first be obtained from the manufacturer. The gauge can then be designed with all the correct dimensions for the various settings.

The multipurpose gauge can be used to correctly set the shuttle boxes, the filling forks on side-fork looms, the filling-motion mechanism, the filling feeler, the protector motion, and other parts.

As an illustration of how the gauge can be used, we will take the setting instructions for the filling motion of a side-fork loom:

1. Preparatory

With the shuttle in the left-hand box, loosen the nuts that hold the left-hand filling-motion stand, the cam-follower hub, and the cam follower; loosen the setscrews that positions the filling cam on the camshaft. Position the lay at front center.

2. Position the Stand

Move the filling-motion stand until the end of the filling-fork slide is flush with the back edge of the back box plate, the fork tines centering the grids of the fork grate. The straight surface of the gauge is used for this setting. If the fork tines have not been bent, the lower ends of the tines should project $\frac{3}{8}$ in. through the grids. Check this setting with the gauge and, if necessary, bend the tines to obtain the correct setting.

3. Set Filling-Motion Hook

With the lay at bottom-center position, adjust the cam-follower hub so that the filling-motion hook will be level. Move the cam-follower dog until the loop of the filling fork is $\frac{1}{16}$ in. from the filling-motion hook. Check this clearance with the gauge.

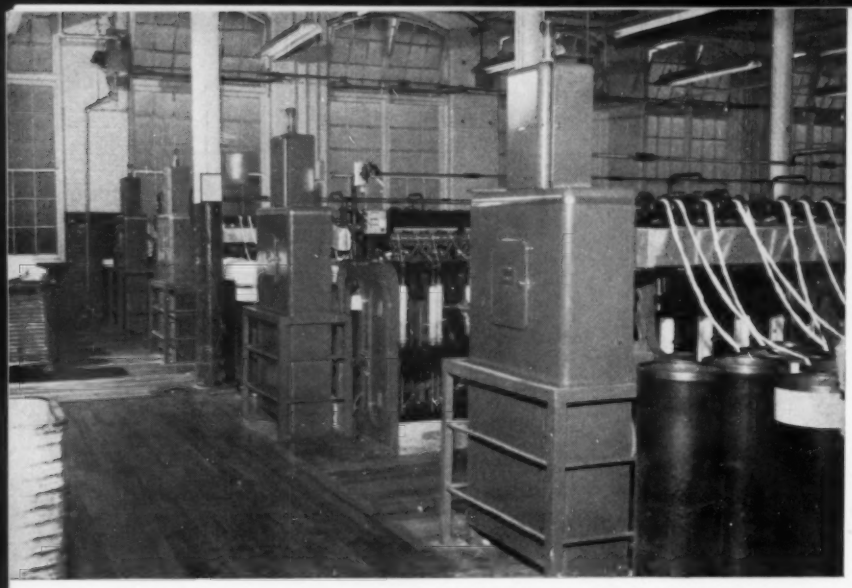
4. Time the Filling Motion

Move the lay back to extreme front-center position. Turn the filling-motion cam on the camshaft in the direction of rotation until there is $\frac{1}{16}$-in. clearance between the loop of the fork and the notch in the filling-motion hook. This setting is obtained by placing the appropriate part of the gauge between the loop and hook and then moving the cam until all three points make contact.

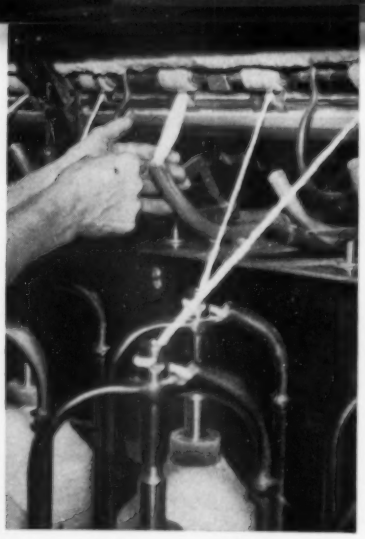
The loom is then caused to pick one time, which places the shuttle in the right-hand box. The right-hand filling motion is then set in exactly the same way as the left-hand mechanism.

When the filling-motion parts of a loom are thus set by gauge, they will operate at peak efficiency and with a minimum of strain and wear. Unless a part breaks or must be replaced because of wear, there will be no need

CONTINUED ON PAGE 196



COLLECTOR UNITS of Pneumastop installation on Saco-Lowell FS-2 roving frames are cleared of waste once each shift. Red light on top of the unit flashes when an end breaks, and the counter below the light records the number of ends down.



BROKEN ENDS are picked up in the orifices of the suction tube, and the frame stops quickly to keep the flyers from loading and the broken end from whipping into other ends. Ends down per frame average 75 per 120-hr. week.

How P. H. Hanes Improved YARN QUALITY

New machines and a Pneumastop installation on roving frames in this North Carolina mill are paying off not only with improved quality but also—

- **Reduced costs**
- **Higher efficiency**
- **Less cleaning**

By W. A. THOMASON, JR., Consulting Editor, TEXTILE WORLD

CHANGES in the spinning plant of P. H. Hanes Knitting Co., Hanes, N. C., that have improved quality and cut costs include new 12x6 Saco-Lowell FS-2 roving frames installed with Pneumastop units.

Before the change, the mill used two-process drawing with six ends up, 9x4½-in. roving frames and double-creel spinning with a Washburn roll. The setup now is new two-process drawing with eight ends up followed by 12x6 roving frames and single-creel spinning with Whitin Super-Draft.

Yarn Has Higher Strength

The added doublings on the drawing, the improved roving from the FS-2 drafting system, and the better control of the Super-Draft spinning have resulted in a more-uniform yarn with higher breaking strength. Many extra benefits have been traced to the Pneumastop installation.

Periodic yarn defects normally caused by whip-overs and fly at the roving frames have been eliminated. Single-creel spinning has required an end to be broken when a bobbin is creeled.

Carded yarns ranging from 6s to 16s are spun from 0.60-hk. roving. This roving is made from 60-grain sliver with a spindle speed of 733 rpm. and a front-roll speed of 223 rpm.

Each frame tender runs three frames of 80 spindles each and does all the doffing, cleaning, and creeling the 12x36-in. cans. The frames run at 77 to 80% efficiency.

A doff runs 60 mins., and a creel runs 6½ hrs. The operators clean the collector unit once each shift, wipe the carriage every doff, and pick the flyers twice each shift. Flyers were picked every doff before Pneumastop was installed.

The collector tubes are run out with a brush once weekly, and the back ducts are cleaned out every six months. Each collector unit has a light on top that flashes when an end comes down, and a counter records the number of stops that are made because of ends down.

Average Ends Down Is 75

The average number of ends down per frame each week of 120 hrs. is 75. Most of the collector waste is short fibers that would normally fly into the room.

Ends that break are picked up by the orifices of the Pneumastop system, the frame stops automatically, the signal light flashes, and the frame tender pieces up the end. The frame stops quickly to keep the flyers from loading and the broken end from whipping into another end.

These changes at P. H. Hanes have also resulted in fewer slubs and break-backs in winding, and they have increased winding efficiency.

How To DYE and FINISH Arnel

Arnel can be successfully dyed and finished by methods originally developed for the more hydrophobic fibers. Producing good results with Arnel and blends of Arnel with rayon, wool, and synthetics depends on —

- **Careful selection of dyes**
- **Using accelerants to aid penetration of dye**
- **Heat-treating the fabric**

ALTHOUGH CELLULOSE TRIACETATE has for many years been considered a difficult-to-dye fiber, the dyeing procedures developed for the acrylic and polyester fibers have been successfully applied to Arnel. Rapid progress in dyeing Arnel has been accomplished during the last year by utilizing closed jigs and becks. Methods and materials employed have included highest-possible dyeing temperatures up to the boil, selected disperse acetate and polyester dyes, and accelerants for the achievement of heavy shades and for economical exhaustion of slow-dyeing dyes.

At present, 30 or so disperse dyes can be recommended for dyeing Arnel to optimum washfastness and resistance to light and gas fading. They have been selected from scores of available structures by careful screening for balanced properties.

The dyeing properties of Arnel triacetate are intermediate in rate between secondary acetate and Dacron. Increasing the dyeing temperature will significantly increase the rate of dyeing. The use of dyeing assistants will either accelerate the dyeing rate or even increase the capacity of the fabric for the dye. Emulsified tripropyl phosphate is one of several materials that assist in the dyeing of Arnel. It will be noted that the use of 10% tripropyl phosphate on the fabric weight at the jig liquor ratio of 4 to 1 results in 25% greater dye pickup in commercial dyeing times.

Heat and Accelerant Give Best Results

Heat treatment as well as use of accelerant distributes the dye within the fiber, but complete penetration and uniform distribution is not obtained until heat treatment is applied to the fiber dyed with accelerant. However, the slow dyeing rate is observed with only the most difficult-to-diffuse structures; most dyes will penetrate rapidly at elevated temperatures.

A full range of shades, including excellent white and developed black, has been achieved in commercial quantities. The whites obtained seem to retain their whiteness extraordinarily well on exposure to atmospheric conditions.

Dyed Arnel fabrics, including the heaviest shades, meet the requirements of the #3 AATCC Wash Test (160° F.) with regard to shade change as well as staining. By the use of selected dyes, at least 40 hrs. lightfastness and 2 units of resistance to gas fading can be achieved.

Recently it has been noted that a different type of atmospheric fading occurs in acetate, Arnel, and Dacron dyed with disperse dyes. This phenomena, called "O" fading, is not completely understood; but actual service-use results have been duplicated by exposing dyed fabrics in the U. S. Testing Company's gas-fading chamber equipped with two Westinghouse or General Electric home-deodorizer (ozone) lamps. In commercial dyeing, optimum protection against O fading in critical light shades is achieved by the use of 0.5 to 1.0% gas-fading inhibitor plus effective heat treatment.

Heat Treatment Necessary

Heat treatment is the key to the success of Arnel. It produces a marked increase in softening point and resistance to glazing as well as improvement in colorfastness. Four methods of heat treatment appear practical. They are (1) radiant heat, (2) hot roll systems, (3) hot-air pin and clip frames, and (4) high-temperature (260 to 280° F.) wet- or pressure-heat treatment.

With regard to the radiant-heat process attached to a pin frame, the following general conditions have been used satisfactorily to produce large quantities of a wide range of Arnel fabrics:

1. By use of a Sill unit with top and bottom panels held at a surface temperature of 800 to 900° F. and arranged 1½ ins. and 5½ ins. from the fabric surface respectively.

2. Although the optimum speed will vary with the type of fabric, a rate of 25 yds. per min. (5 to 12 secs. heating time) with less than 2 secs. at peak temperature is in general satisfactory for fabrics that have been preheated to about 275° F. in the dryer section.

Satisfactory heat-treatment conditions can be achieved in hot-air clip tenters, but the process must be controlled very carefully. The problems of reduction of take-off tension, balanced air flow, elimination of clip marks, and cool selvages still remain major difficulties to be solved before this process can be considered commercial.

Wet heat treatment such as exposing the fabrics for 30 mins. to 40 lbs.-per-sq.-in. pressure gives good results, and at present it is the only one suitable for knitted fabrics. Tricot fabrics prepared from 50-den. Arnel pressure-dyed or autoclaved at 20 lbs.-per-sq.-in. for 1 hr. are sufficiently stabilized and heat-treated to permit the production of lingerie displaying excellent dimensional stability and appearance on repeated home washing, hydroextraction, and tumbler drying.

Disperse Dyes Print Arnel

A printing process has been developed based on the same disperse dyes listed in the table on page 134. The print-paste formulation should include thickeners such as sodium alginate, which do not become insoluble under heat-treatment conditions, and solvents such as phenyl Cellosolve, to facilitate levelness of appearance and penetration of dye.

The application of these pastes by screen- or roller-printing processes followed by heat treatment of the fabric to permit penetration of the color results in excellent color value, purity of hue, levelness, and colorfastness after thorough washing to remove excess print paste, solvent, and surface color. Disperse dyes exhibit the same

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Presented at a meeting of the American Association for Textile Technology, Inc., by Fred Fortess, Celanese Corp. of America

SELECTED DISPERSED DYESTUFFS FOR ARNEL

Dyestuff	Sublimation*	Shade change	#3 wash (160° F.)* test Staining Nylon	Staining Acetate	Bath	Gas fading** 1 unit	Gas fading** 2 units	Lightfastness** 20 hrs.	Lightfastness** 40 hrs.	"O-Fading"** 18 hrs.
Eastman Blue GLF	4 to 5	4 to 5	5	5		4 to 5	4	4 to 5	4	2
Lenra Blue RLS	4	4 to 5	5	5		4 to 5	4	4 to 5	4	2
†Interchem Blue GSF	4 to 5	4 to 5	4	5	Practically	4 to 5	4	4 to 5	4	2
Cibacete Blue GLF	4 to 5	4 to 5	4	5	none	4 to 5	4	4 to 5	4	2
Latyl Blue FL	4 to 5	4 to 5	4	5		4 to 5	4	4 to 5	4	2
Celliton Blue LAFR	4 to 5	4 to 5	5	5		4 to 5	4	5	4	2
Nacelan Blue KLF	4	4 to 5	4	5		5	4 to 5	4 to 5	4	2
Latyl Blue BG	5	5	5	5		5	4 to 5	5	4 to 5	2
Eastone Red GLF	4 to 5	4	4	4		5	5	4 to 5	4	5
†Interchem Red GSF	5 to 4	4	4	4		5	5	4	3 to 4	4 to 5
†Interchem Scarlet GSF	4 to 5	4	4	4	Light	5	5	4	3	4
Celliton Red GGLL	4	4	4	4		5	5	4 to 5	4	5
Eastone Fast Red 2BGLF	4	4	4	3 to 4		5	5	4	3	4 to 5
Eastone Fast Pink 3BGLF	4 to 5	4	4 to 5	4 to 5		4 to 5	4 to 5	4	3	4 to 5
Cibacete Red GGF	4	4	4	3 to 4		5	5	4 to 5	4	5
Celliton Fast Red 6DAC	4	4	5	5		5	5	4 to 5	4 to 5	2
Celanthrene Violet BGF	4	4	5	4	Practically	4 to 5	4	4 to 5	4	2
Eastman Violet 3RGLF	4	4	5	4	none	4 to 5	4 to 5	4 to 5	4	2
Nacelan Red 2G	4 to 5	4	4	4		5	5	4 to 5	4	5
Lenra Yellow CW	4 to 5	4 to 5	4 to 5	4 to 5		5	5	5	4 to 5	5
†Interchem Yellow HDLF-40	4 to 5	4 to 5	4 to 5	4 to 5	Light	5	5	5	4 to 5	5
Celliton Fast Yellow GGLL	4 to 5	4	4 to 5	4		5	5	5	4 to 5	5
Latyl Yellow YL	4 to 5	4 to 5	5	5		4 to 5	4 to 5	4 to 5	4 to 5	5
Eastone Fast Yellow 2RGLF	4	4 to 5	5	3 to 4	Practically none	4 to 5	4 to 5	4 to 5	3 to 4	5
Artisil Yellow RCGFL	4 to 5	4	5	4	Light	4 to 5	4 to 5	4 to 5	4	5
Cibacete Yellow GWN	4 to 5	4	5	4	Practically	4 to 5	4 to 5	4 to 5	4	5
Nacelan Fast Yellow KAL	4 to 5	4	5	4	none	4 to 5	4 to 5	4 to 5	4	5

* 3% dyeing.
** 0.5% dyeing.
† Now called Interchem Triacetate Blue, etc.

THESE DYES have proved practical in dyeing Arnel a full range of shades.

colorfastness on Arnel whether applied by wet-dye procedures or by print application followed by heat treatment.

Excellent results have been achieved by printing heat-treated Arnel fabrics with aqueous dispersions of pigment materials containing binders. Silicone-type finishes greatly improve the crocking properties normally associated with pigment printing.

Blends Successfully Dyed

Arnel fabrics blended with cotton, rayon, wool, nylon, Dacron, and the acrylics have been dyed and finished in commercial equipment. Each combination of fibers presents a separate set of problems.

Arnel-rayon fabrics can be dyed by the same methods used for Arnel-cotton blends. Direct copper-fixable dyes are used on the rayon, and disperse dyes on the Arnel under the recommended conditions. The fabric can be finished with the urea-formaldehyde or melamine-formaldehyde resin containing copper or cationic fixatives and result in satisfactory washfastness at the #3 AATCC level (160° F.).

Heat treatment of such a fabric is recommended before the application of the fixatives and resins. The silicones and Permel-type finishes in combination with the fixative greatly minimize the reduction in tear and abrasion properties normally associated with the use of the cross-linking resins.

How To Dye Arnel-Wool Blends

Arnel-wool blended fabrics can be dyed a wide range of union shades by using a mixture of disperse and acid dyes. However, the tendency of wool to be stained by the disperse dyes under normal dyeing conditions produces reduced colorfastness on the wool component. For most shades a three-bath dyeing process is necessary in order to minimize the staining tendency on the wool component. The three steps are:

1. Dyeing the Arnel with an accelerant that will reduce the disperse-dye stain on wool.

2. Clearing the disperse-dye stain from wool. If the stain is not removed, the colorfastness properties of the finished fabric will be lowered.

3. Dyeing the wool with fast dyes, such as selected acid or neutral-dyeing premetallized acid dyes.

Under optimum heat-treatment conditions for Arnel, the wool component is excessively degraded. For this reason silicone finishes and temperatures no higher than 410° F. are recommended.

Arnel-Synthetics Blends

Arnel-nylon blends are sometimes desirable, but it should be noted that the washfastness of the disperse dyes on Arnel is much better than on nylon. For this reason the same procedures developed for Arnel-wool may be applied; the use of accelerants greatly reduces the quantity of disperse dye on the nylon component. For better washfastness, the disperse dye may be stripped from the nylon and then overdyed with the same selected premetallized acid dyes as recommended for the Arnel-wool dyeing. Typical acid dyes are Cibalan Blue BL, Irgalan Yellow GL, and Cibalan Red 2GL.

Heat-treating Arnel-nylon blends should follow Arnel-wool procedure, at a maximum of 410° F.

Careful consideration must be given to the proper use of the nylon component in the blend and construction of the fabric.

Both fibers of Arnel-Dacron fabrics utilize the same class of dyes, accelerants, and optimum temperature; and both respond to heat treatment. But some dyes that are satisfactory on Dacron are unsatisfactory for Arnel. Celanthrene Cerise B, which is the least subliming red for Dacron, and

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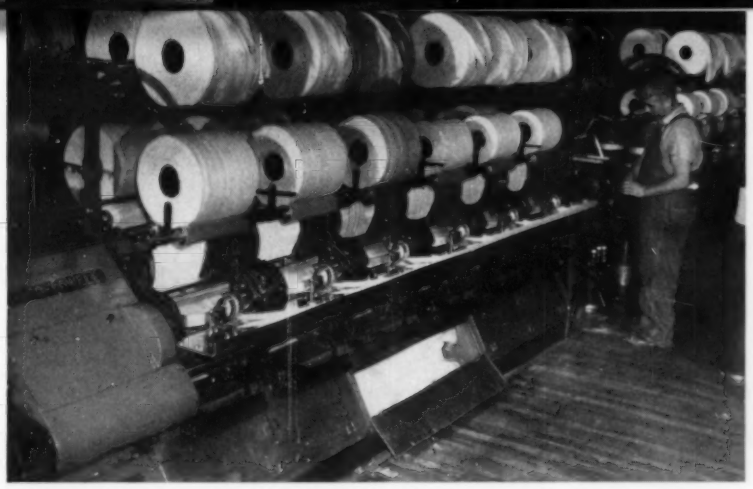


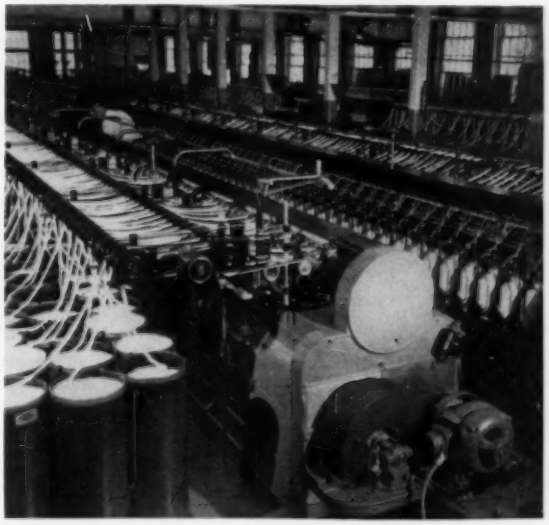
NONUNIFORMITY of 18% is obtained on the Saco-Lowell combers, which have three-over-four draw boxes. One of the combers is being checked by the comber fixer, Elmer Cloninger. You can see the doors that the mill made to cover the waste compartments.

CARD-ROOM Changes At Robinson Improve Quality

Improved fiber control has enabled Robinson Mills, Inc., Dallas, N. C., to improve yarn quality and increase production of combed singles knitting yarns. Here's what the mill did—

- **Replaced 24 Naismith combers with 12 Saco-Lowell combers**
- **Replaced four-roll drawing after combing with three-over-four drawing**
- **Replaced 8x4 roving frames with 10x5 roving frames**
- **Added 15 spinning frames**

By W. A. THOMASON, JR.
Consulting Editor, TEXTILE WORLD



LARGER-PACKAGE ROVING FRAMES have been installed. The 10x5 FS-3 frames in the foreground replaced 8x4 frames. The mill plans to replace all 8x4 frames with 10x5 frames. Spinning-frame creels are being changed to umbrella type to take the larger-diameter bobbins. All roving is double-creeled at spinning.

Robinson Mills, Inc., Dallas, N. C., is a high-quality combed-yarn mill that spins 18s to 40s combed singles knitting yarns.

Changes were made a few years ago in the card room to improve comber production and yarn quality. The mill layout was rearranged to permit the mill to add 15 spinning frames.

Before the more-recent changes, the mill had 32 deliveries of five-roll, lap-back drawing before combing. The drawing laps were made on two 9-in. lap winders, 16-ends-up.

The mill replaced the five-roll drawing with 48 deliveries of four-roll drawing, eight-ends-up, and eliminated the 9-in. lap winders. A draft of about 9 on the preparatory drawing prepares the 1 1/16-in. cotton fibers for combing.

Two 10½-in. lap winders previously had been used to make laps for 24 Naismith combers. No additional lap winders were needed when these combers were replaced with 12 new Saco-Lowell combers. The new combers are set for production of about 40 lbs. per hr. net and have three-over-four draw boxes. The nonuniformity of the combed sliver on a Uster tester averages about 18%. If the sliver variation goes above 20%, the comber is stopped and checked.

Drawing Replaced

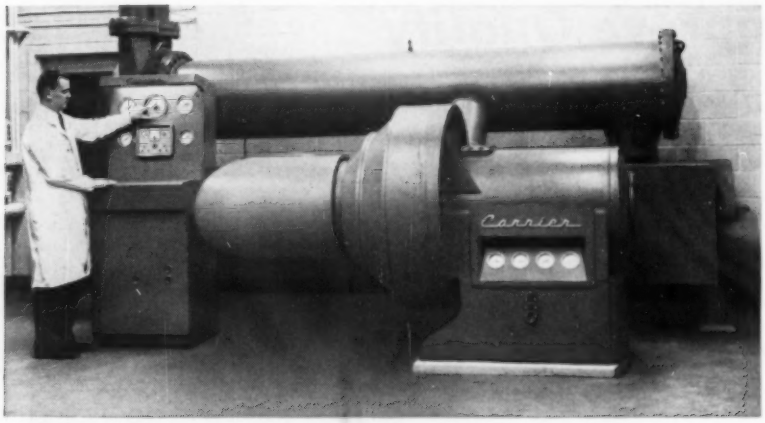
Two processes of four-roll drawing, which formerly followed combing, have been replaced with two processes of three-over-four drawing. All the three-over-four drawing is 18-in. gauge.

CONTINUED ON PAGE 141

Carrier Textile News

Most Exciting Development of 1956

NEW CARRIER HERMETIC CENTRIFUGAL REFRIGERATING MACHINE



COMPACT DESIGN AND LIGHT WEIGHT cut equipment space to a minimum . . . make installation easy. Because the hermetic motor and compressor are contained in a simple factory assembly on a single shaft, there is no problem of alignment. No heavy foundation is required for alignment or to support the weight of the machine.

Automatic operating controls housed in handsome control console

PUSH-BUTTON OPERATION is so simple that a highly trained operator is unnecessary. All the "training" is built right into the machine. Dial gauges and "green light" indicators on the face of the console trace the operation of the machine from moment to moment.

The unique Carrier Control Console is the nerve center of the new centrifugal. You push a single button on the face of the console, and electronic controls take over. The machine capacity output then adjusts to the rise and fall of the cooling load automatically.

You can locate the control console right next to the machine, or in the next room. Only small electric wires and capillary tubes connect it to the refrigerating machine. If desired, you can operate the machine manually with simple controls located behind the transparent window on the console.

Dependable heart for any textile mill air conditioning

The newest Carrier Centrifugal Refrigerating Machine is a hermetic! And what a hermetic! It operates automatically—and gives you a combination of weight, space and efficiency never before achieved in a centrifugal.

One of the keys to the superb efficiency is in the constant-speed motor-compressor connected by a solid shaft. And another is the cooling of the motor by the refrigerant itself.

Moment by moment the capacity output is adjusted to the load, automatically, by inlet vanes hydraulically powered — exclusive with Carrier. As the load on the machine goes up and down, oil pressure opens and closes the vanes, saving power while giving continuous operation of the machine.

Write for Free Booklet

For your copy of the new booklet about the new Carrier Centrifugal, call the nearest Carrier office. Or write Carrier Corporation, Syracuse, New York.

SEAMLESS MACHINES knitted stockings with an 8-in. spread in leg length when four different pirns were knitted on three machines.

PREBOARDING and final-boarding operations need careful supervision. Variations between boarders' techniques can affect leg-length variations by 1 in.

22 Causes of Variation In NYLON-HOSIERY Length

- **Seamless hosiery gives more trouble with length variations than full-fashioned hosiery does**
- **Factors that contribute to length variation occur during spinning, throwing, transporting, knitting, dyeing, and finishing**

EXPERIMENTS conducted with the aid of several mills have shown that all phases of nylon-hosiery manufacture, from yarn spinning to finishing, contribute to length variations in the final product.

So far, results have shown that 50% of the variations have been caused by the knitting machines, 40% is due to the yarn, and 10% is due to other causes.

Three factors that contribute to length variations during spinning were found to be:

1. The denier size.
2. The quantity of the finish applied to the yarn.
3. The surface characteristics of the guides that tend to cause friction variation.

Tube Type Affects Lengths

4. Whether the yarn is put on a metal or a wooden tube affects the leg length. A maple tube affords a greater degree of relaxation.
5. The type of wind on the yarn package affects the ease of the take-off, and it can reduce press-offs due to plucking.
6. During transport to the knitter or throwster, exposure of tubes to the atmosphere results in the knitting of short lengths.
7. Tubes that are bruised and badly handled cause drag and press-offs.
8. Consistent throwing practices are important. Efficiently thrown yarn will produce less length variation.
9. Uniform twist setting is not easy, but lack of control at this process can be a source of trouble.
10. Tests on a wide range of cone densities have shown that this cause has little effect on leg lengths, but such variations can indicate inefficiencies in throwing.

Seamless Machines Are Worst Offenders

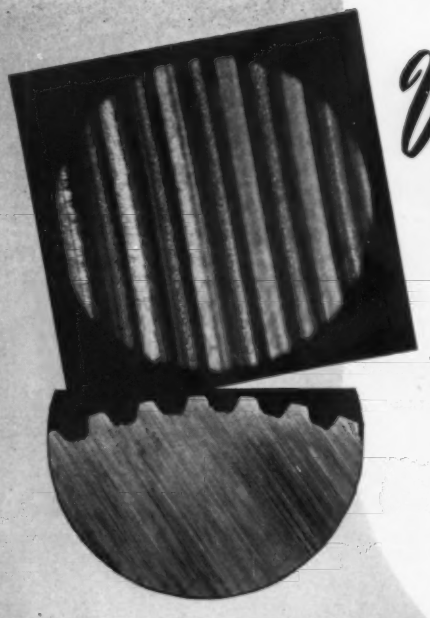
11. The type of knitting machine has an effect on the leg lengths. Seamless hosiery machines give about dou-

CONTINUED ON PAGE 198

From an address by J. F. Tomkins and Mrs. J. M. Hayward, British Nylon Spinners Ltd., at the Stocking Conference at Hinckley, England.

NUMBER 4 OF A SERIES:

Which is the best Money Value?



ACCURATE DRAFTING CONTROL ASSURES SMOOTH, UNIFORM YARN AND RESULTANT HIGH QUALITY. THESE FACTORS ARE DIRECTLY DEPENDENT ON THE ACCURACY OF THE ROLL ASSEMBLY AND SPECIFICALLY ON THE ROLLS THEMSELVES.

Pictured above are unretouched, magnified views of 2 bottom rolls. ON THE RIGHT IS "YOUR BEST MONEY VALUE" — THE SACO-LOWELL STEEL BOTTOM ROLL WITH ROLLED FLUTES.* This exclusive roll fluting gives a far more uniform contour, plus a smoother surface that keeps flutes clean and free of microscopic rough spots that act as fibre traps. In addition, these Saco-Lowell Rolls are manufactured from the same dies used in making the original rolls, have the exact fluting arrangement and therefore run "true" in every respect. Saco-Lowell steel bottom rolls with "rolled flutes" are manufactured from special stock, produced by master craftsmen, induction hardened by an exclusive Saco-Lowell process, specially honed to give an extra satin-smooth finish, and ruthlessly inspected to assure perfection.

Poorly formed, irregular flutes, as shown in the illustration at the left, interfere with fibre flow and are the source of yarn irregularities often easily detected but hard to trace. Hardening, not properly controlled, creates variations in the depth of "case", thus causing uneven wear and loss of fibre grip. Failure to match exactly the original roll specifications makes it impossible to obtain uniform results throughout the spinning room.

There can be no question — "It Pays to Use Genuine Saco-Lowell Repair Parts." Our engineers will be glad to discuss steel rolls with you and make specific recommendations. Write to the nearest Saco-Lowell Sales Office.

*Patent Pending.
See Saco-Lowell Bulletin — July 1953

"There is hardly anything in the world that someone cannot make a little worse and sell a little cheaper — and the people who consider price alone are this man's lawful prey."

John Ruskin

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POINTERS for SUPERVISORS

Look Beyond Symptoms for Causes

• You need to watch carefully for symptoms that indicate trouble in your department. But you'll only aggravate the condition if you treat the symptoms without finding out—and correcting—the real causes of the trouble.

By **M. A. CROSS,** Director of Industrial Relations, Dan River Mills, Inc.

Every supervisor should be alert to symptoms that indicate a sickness in employee relations. Symptoms can take different forms—changes in attitude, friction among employees or between employees and supervisors, unexpected blow-ups, an excessive number of complaints, or a slowdown in production performance. All these things give the tip-off that an investigation is called for to see if something has soured in the employee-relations picture.

Sometimes the investigation made in such circumstances is only a cursory one, the real causes at the root of the trouble are not discovered, and the remedial treatment decided upon proves to be wrong. If and when this occurs, the chances are excellent that the cause hasn't been cured and the day of reckoning for effecting a proper cure has merely been postponed.

Consider a doctor's methods. When you go to him complaining of a bodily ailment, he wants to know your symptoms. He checks temperature and blood pressure, listens with his stethoscope, and perhaps resorts to x-ray and laboratory tests if the trouble appears serious or deep-seated.

He is interested in symptoms, however, because of the light they may throw on causes. His real objective is to find out exactly what is causing the illness so that he can treat the cause—and he treats the cause, not the symptoms. In his treatment he wants to accomplish two things: to cure the present condition, but equally important, if at all possible, to prevent a recurrence of the illness. He is interested in preventive medicine, not just a treatment that may relieve present discomfort.

What I am suggesting here is that supervisors should take a lead from the doctors—that they should be equally as diligent in looking into the causes of employee-relations problems as the medical man is in establishing the causes of bodily disease. And I am pleading against the jumping to conclusions that supervisors occasionally engage in when the symptoms of employee discontent appear. You can be wrong, you know; and if you are, you may not cure the difficulty—you may actually complicate it.

Let's look at some actual cases to sharpen up this point of looking beyond the symptoms to find the causes. I recall a particular grievance in which a small group of employees were bringing vigorous objections against their incentive pay rates. Many discussions were held and many timestudies made in an attempt to resolve the grievance, but without success.

Finally it came out that the pay rates were only a minor irritant; what was actually gnawing away at the employees involved was a dissatisfaction with certain working conditions. Their workplace was cold and drafty in winter and extremely hot in summer. The dressing room they were required to use was at a distant corner of the plant and very inconvenient to reach. There was no water fountain conveniently close to their work area.

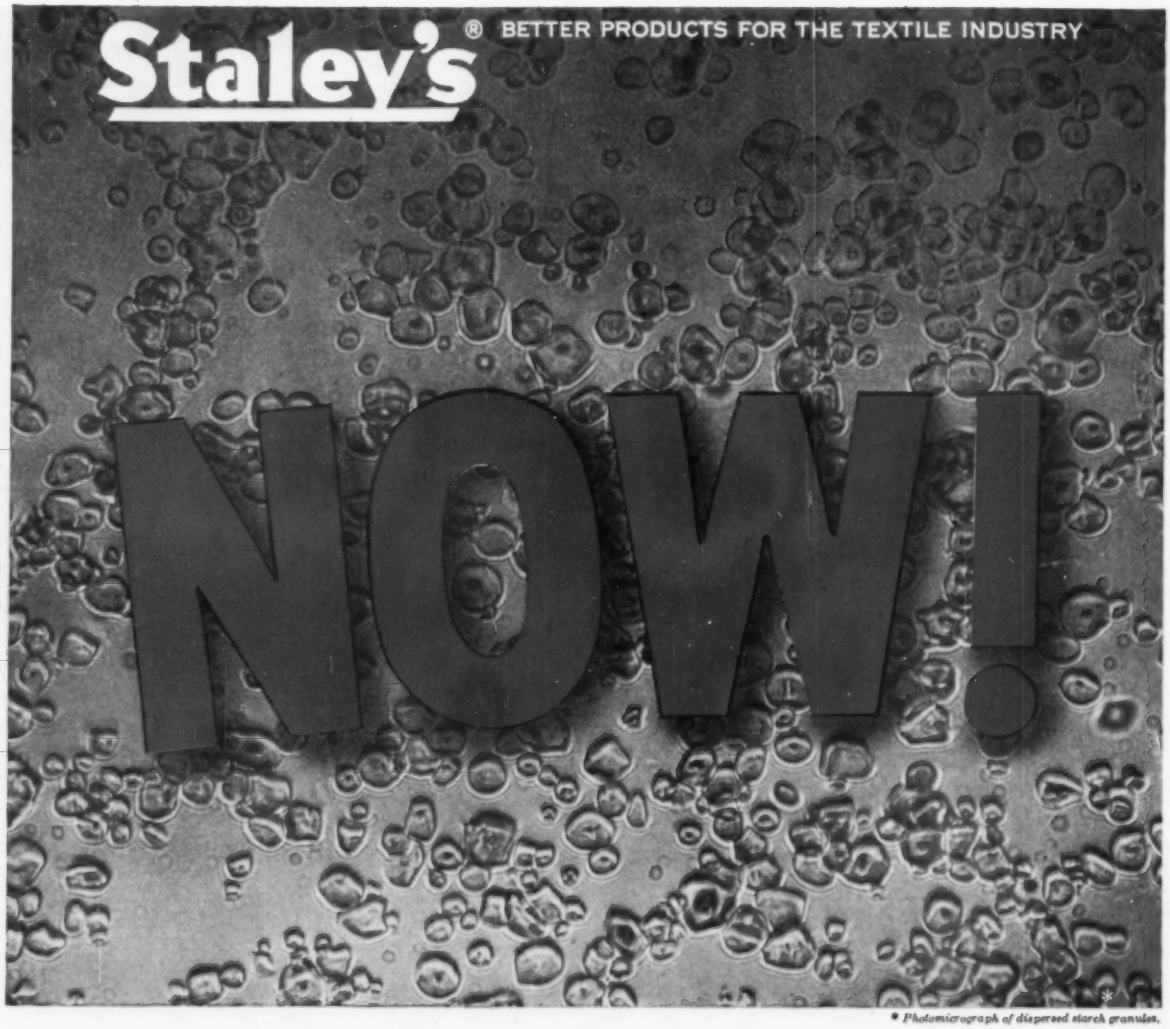
All these conditions, which were relatively easy to correct, had been brought to the attention of the supervisor and he had promised to have them corrected. Unfortunately, having made the promise, he forgot about it in the press of other business and never followed through on what his employees had accepted as a definite commitment.

Their exasperation with unpleasant working conditions and the forgetfulness of a supervisor who failed to carry out a promise was expressed in the form of a grievance about rates of pay. The grievance was settled by correcting the working conditions, with the rates left unchanged. A lot of time and effort was wasted in trying to cure this employee-relations sickness before the actual causes were finally discovered.

I've seen the reverse of this situation in a number of instances. The complaint has been about treatment by supervisors or about a disciplinary action for substandard performance when in fact the trouble was inequitable rates of pay. After sparring with the supposed cause based on the surface symptoms, it became clear that the cure, if it were to be effective, required a rate adjustment. Only then would the discontent with supervisory treatment and discipline disappear.

Here's a problem that almost every supervisor has encountered at one time or another. Unrest and friction develop among a group of employees and are expressed

CONTINUED ON PAGE 200



* Photomicrograph of dispersed starch granules.

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NEW! **STADEX® Dextrins** —White, Canary, and British Gums—tailor-made for exacting requirements. A new concept in degree of uniformity and minimum color.

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WHAT SUPERINTENDENTS EXPECT FROM OVERSEERS

CONTINUED FROM PAGE 95

most overseers listen; but one-way listening is as bad as one-way talking, no matter which the overseer is doing and which the people under him are doing.

What I mean is that the overseer should spend more time going down his alleys and talking to his people about what a machine is doing, how the work's running, what we're trying to do and why, etc.

And the importance of repetition shouldn't be overlooked. If an overseer tells his people something one day, he should go back the next day and tell them the same thing again. He should keep right on telling them until he accomplishes what he set out to do.

TEXTILE WORLD: To sum up, we could draw the following list of common shortcomings of overseers:

1. Closed mind. Unwilling to seek out and try new ideas (because of his fear that the new idea threatens his job performance and job security)
2. Afraid to make decisions
3. Moral blunder
4. Unable to say No (often because of too much sympathy for the people under him)
5. Unable to say No with tact and skill
6. Failure to talk with his people enough and to explain things sufficiently to them

DOFFER JOBLOAD

CONTINUED FROM PAGE 97

heavily on the data shown with Picture 2. Incidentally, it should be noted that the times listed apply only to the mill from which they were taken. Each mill must determine its own time standards.

Each mill also has to work out cleaning and miscellaneous duties for the doffer. The practice of giving extra duty to doffers appears to be pretty general throughout the industry for the following reasons:

1. A doffer can't stand on his head all day doffing. He needs a different type of job to break the tough strain of lifting bobbins.

2. Mills find that operators doff faster and get frames started quicker when they also have a cleaning job as a cushion.

For these reasons, the graphic method shows the percentage of time occupied by cleaning duties. The number of frames assigned to the doffers is based upon the amount of time remaining after cleaning duties.

One other detail should be investigated for the benefit of any overseer or production supervisor who has the job of setting work assignments. As all standards men know, any time standard used by the mill contains time for the personal use of the doffer, such as for resting. Some mills may make time allowances for speed and other reasons. This allowance business is confusing until you consider how it works in actual practice.

Allow 15% Personal Time

Take the example in the graphic formula. The standards are worked out with a personal allowance for the doffer of 15%. The reason for this allowance, where premium incentives are used, is that it is almost impossible for an average doffer to make a premium in some mills; there is no real incentive to induce him to produce more hanks.

Another detail that production men might consider is that the 15% extra allowance time for personal needs and rest is applied to all the functions of the job. In the graphic formula, 15% has been added to the functions of stopping, doffing, starting, piercing up, and dumping. However, most standards engineers favor a differential-allowance percentage rather than the blanket allowance used here to simplify the illustration. These details vary from mill to mill.

Differential percentages simply mean that the percentage is increased according to the strain and fatigue demanded by the function or job element. Doffing, for example, is a lot harder on the human body than piecing up. Therefore, some standards engineers make a flat 25 to 33% allowance for the tough part of the job, with perhaps as little as 5 to 10% for light work.

Doffer relations definitely improve in a spinning room that makes an effort to show the why and the how of its jobload studies. But doffers, like many other operators and perhaps even supervisors, cannot understand the meaning of standards until the system graduates from the number-in-a-hat method.

Management is investing unwisely when it spends money on general employee-relations programs and neglects the bread-and-butter relationships right in the middle of the spinning room. Full-color brochures with picture stories of mill picnics are fine; but the doffer can't go to that picnic if he has already quit the job.

CARD-ROOM CHANGES

CONTINUED FROM PAGE 135

The frames are arranged so that 15-in. cans can replace the 12-in. cans at a later date. The original 16-in. gauge four-roll frames are now used as preparatory drawing.

The original five-roll preparatory drawing was changed to three-over-four, and additional new deliveries were bought. This drawing has 1⅛-in. front rolls and produces finished sliver that averages 12½% nonuniformity.

A new type of leather clearer, made by Clearer Cot Co., is being tried by the mill on three-over-four drawing and comber draw boxes. The leather clearers are expected to eliminate the operation of cleaning the clearers.

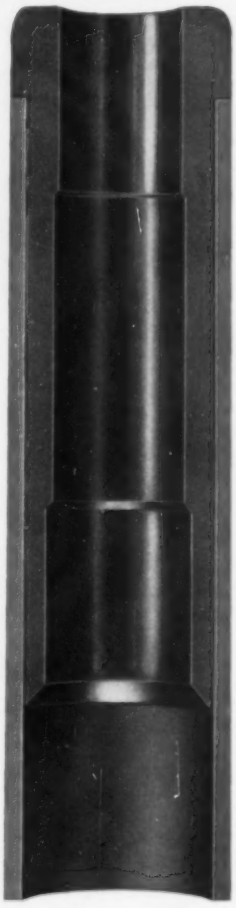
Roving for 18s to 26s yarn is now made on 10x5 frames, and roving for 30s to 40s is made on 8x4 frames.

New umbrella creels are being put on the spinning frames so that full 10x5 bobbins can be creeled at all frames. The mill has 3½- and 3¾-in.-gauge spinning frames that are to be equipped with Whitin change-overs to give higher drafts.

The BETTER Bobbin for your Gwaltney Frames

A·P·T· SG1 BOBBIN

Actual-size cutaway of the plastiwelded tip and seat section



Solid plastic tip withstands hardest mill usage

Pressure-molded seat, insuring permanent precision.

Accepted from the first as the leader for Gwaltney Spinning, this A.P.T. bobbin has undergone another year of research and improvement in our new plant. Now in production is the rugged design detailed at the right, which gives positively the finest seat for Gwaltney spindles, assuring:

- precision alignment.
- permanent concentricity.
- super-easy offering.

This rugged all-plastic tip and seat section is thermosetting plastic of tremendous toughness, formed together with the synthetic tube by patented "plasti-weld" into a unit of permanent precision. The homogeneous composition of the tube, plus impregnation and baking, makes it free from warping, splitting or chipping; heat and friction resistant; unaffected by moisture in any form whether humid atmosphere or steaming treatment.

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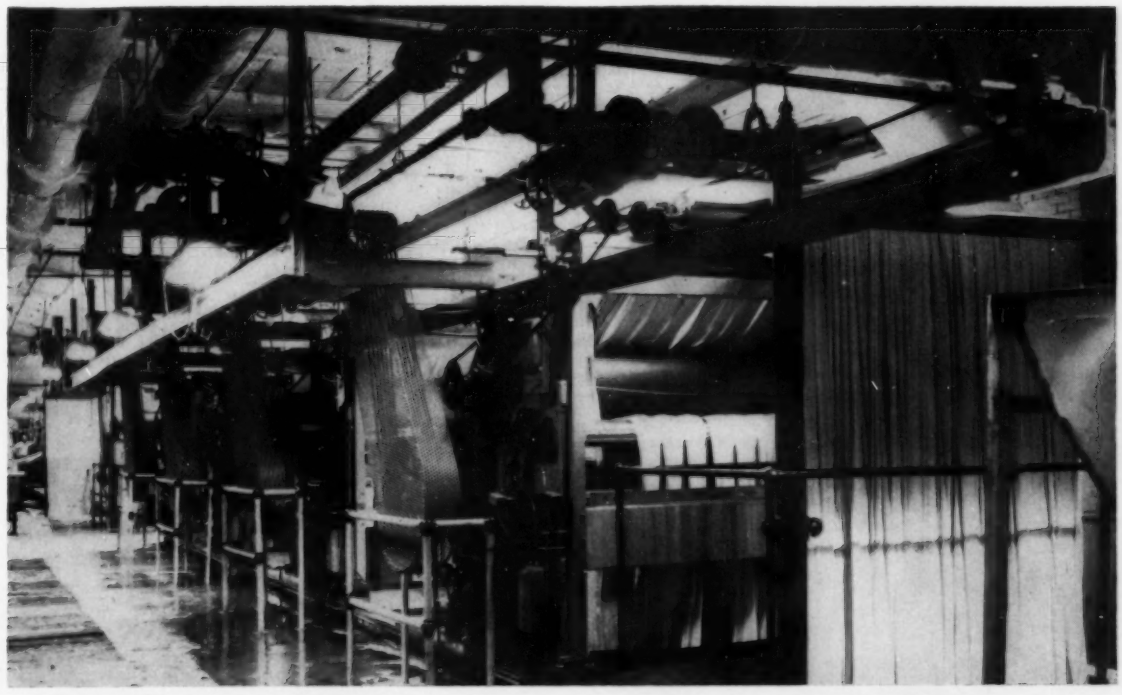
EQUIPMENT and SUPPLY NEWS



Continuous Cloth Washer

The Cascade Model C cloth washer redesigned by James Hunter Machine Co., North Adams, Mass., can handle up to 60 yds. per min. of woolen fabrics. Featured are one-man operation, low steam and soap consumption, and economical use of water—only 5 to 10 gals. per lb. of cloth.

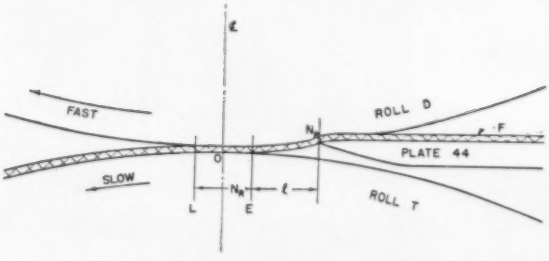
Drive is by a.c. motors with variable-pitch sheave to a speed reducer. Slack between units is easily maintained without J-boxes or dancer rolls. Bowls are set flush with the floor, avoiding any need for structural support of drive units. Safety-stop controls are located on the pin bar, over each bowl, and on the entering side of each nip. Air operates squeeze rolls.

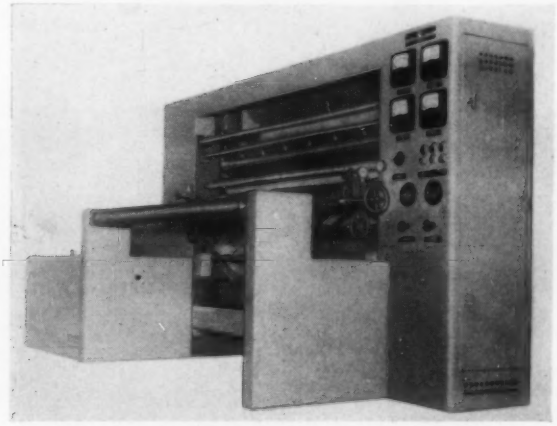
Circle T-1 on Reader-Service Card

Feed-Box Apron

A synthetic-rubber belting for garnett lapper aprons, picker feed-table aprons, and other feed-box aprons is being made by Robert A. Main & Sons, Inc., 257 Pascack Rd., Paramus, N. J. The belting, called Mainflex, is to be used where moisture and rotting is a problem. The belting is sold cut to fit or in rolls.

Circle T-2 on Reader-Service Card





Compacting Machine

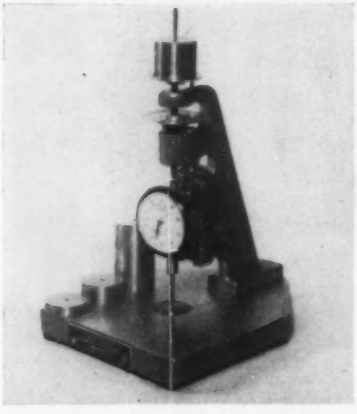
A machine that provides dimensional stability to yarns and fabrics by a new principle of operation has been announced by Riggs & Lombard, Inc., Lowell, Mass.

The operating principle is illustrated in the drawing. Wet fabric *F* is passed over plate 44 and against resilient roll *D*, which is spaced above *T* so as to form a nip at *O*. Roll *T* travels at a lower speed than roll *D*; so there is a variation in the speed of cloth travel between points *Np* and *E*, represented by *l*, and points *E* and *L*, represented by N_R. Roll *T* is made of a relatively noncompressible material with a sprayed stainless-steel surface, or it may be softer than the upper roll but with a surface that has a higher coefficient of friction than the upper roll.

Adjustments of plate 44, relative speeds of rolls *D* and *T*, and spacing between the rolls can be made to accommodate any type of cloth. In any case, roll *D* must rotate faster than roll *T*. In addition to dimensional stability, the machine is capable of creating surface effects and finishes not previously possible in a single run.

The machine will be sold outright to licensees. Fabric Research Laboratories, Dedham, Mass., was the original developer of the process.

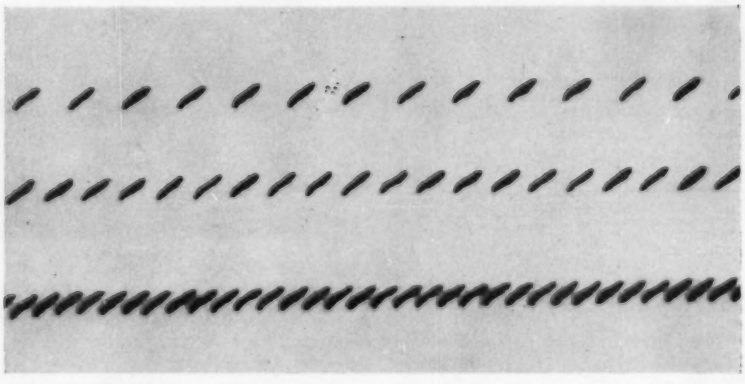
Circle T-3 on Reader-Service Card



Thickness Tester

The Model CS-55 C&R Tester for thickness, compression, and recovery of fabrics is available from Custom Scientific Instruments, Inc., 541 Devon St., Kearney, N. J. The tester will meet many ASTM specifications for thickness maintaining a preload of ¼ oz. For compression, the dead load is applied to the sample without impact.

Circle T-4 on Reader-Service Card



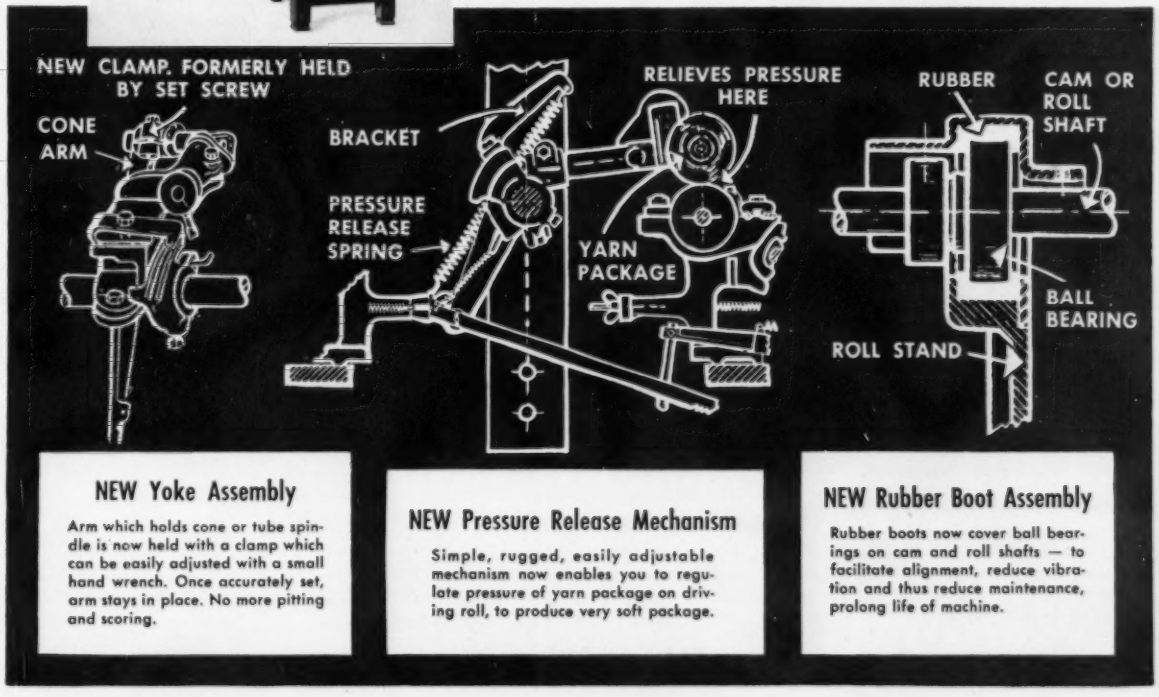
Slant-Stitch Sewing Machine

A sewing machine that produces slanted stitches has been announced by Columbia Sewing Machine Corp., 315 W. 35th St., New York 1, N. Y.

The Model 120 machine is adjustable to give four to nine stitches per inch and employs a single thread. Decorative effects are possible by blending various-colored yarns. The machine is built into a Union Special 61400-type head. Operation is easy, and maintenance costs are low.

Circle T-5 on Reader-Service Card

FOSTER
MODEL 102 WINDER



NEW Yoke Assembly

Arm which holds cone or tube spindle is now held with a clamp which can be easily adjusted with a small hand wrench. Once accurately set, arm stays in place. No more pitting and scoring.

NEW Pressure Release Mechanism

Simple, rugged, easily adjustable mechanism now enables you to regulate pressure of yarn package on driving roll, to produce very soft package.

NEW Rubber Boot Assembly

Rubber boots now cover ball bearings on cam and roll shafts — to facilitate alignment, reduce vibration and thus reduce maintenance, prolong life of machine.

Foremost in Flexibility — Continuously Modernized

The Foster Model 102 produces cones with increased taper, assuring free delivery at the knitting machine. It was first to produce the open wind cones most suitable for knitting and will wind any type or count of spun yarn . . . will provide 9 different angles of wind from 9° to 18°, just by changing a few gears . . . can be readily equipped with a conditioning attachment . . . will produce a variety of cone tapers . . . will wind dyed yarn even when damp . . . can be built to wind 6″ or 7″ traverse knitting cones, warping cones, parallel tubes or dye packages — or short traverse cheeses.

Outstanding flexibility has made the Foster Model 102 preferred choice for many purposes for years. It holds its pre-eminence because our policy of continuous modernization constantly improves on its overall efficiency and its already long life expectancy . . . though improvement on some features may be impossible. A few relatively new improvements are illustrated herewith.

Send for Bulletin A-95.

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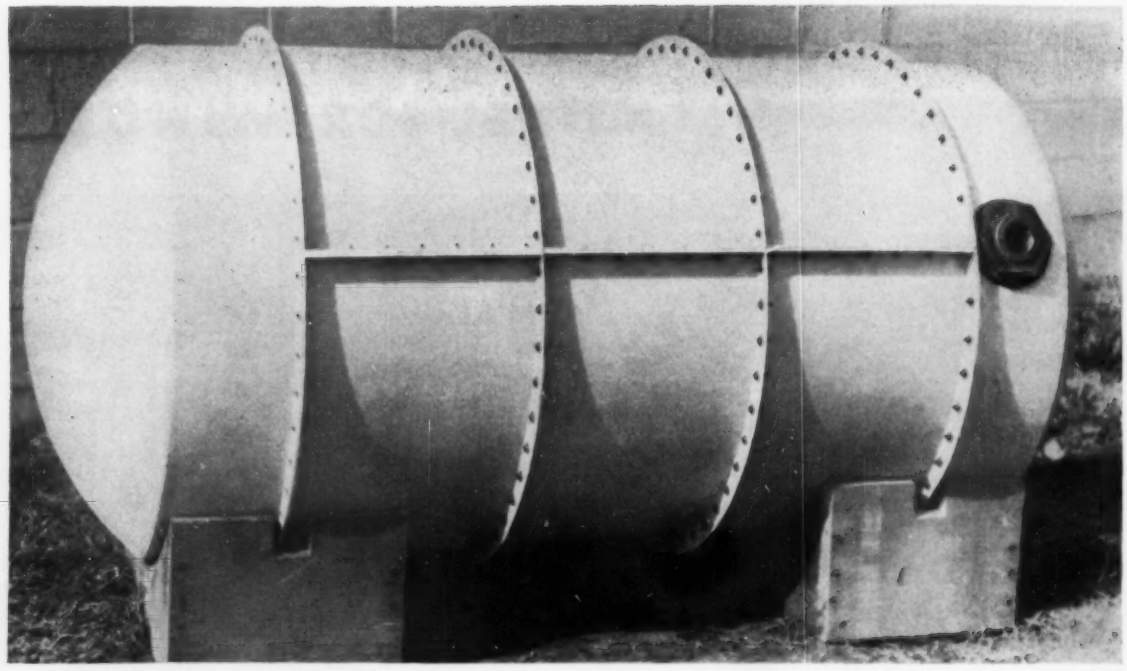
European Representative — Muschamp Textile Machinery Limited, Keb Lane Bardsley, Oldham, England

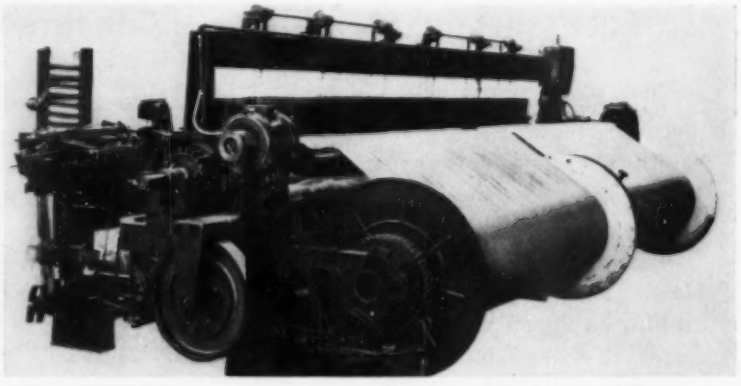


Preformed Molded Tanks

Resin-reinforced Fiberglas is used to mold tank sections that can be assembled into vertical or horizontal tanks up to 1,000-gal. capacity. Center sections and end sections are bolted together with neoprene gaskets to make tanks to suit customers' needs. Standard sections make tanks 36 ins. in diameter in 16-in. increments. The tanks are rugged and last a long time. Jones & Hunt, Cove Way, Gloucester, Mass., is the distributor.

Circle T-6 on Reader-Service Card

Automatic Jute Loom



An automatic jute loom for producing backing cloth for tufted carpets has been introduced by British Northrop Loom Co. Ltd., Blackburn, England. The loom is built in two standard widths of 174 and 210 ins. American agents for the loom are Draper Corp., Hopedale, Mass., and A. C. Wickman Ltd., Toronto, Canada.

The 174-in. loom operates at 75 to 77 ppm., and the 210-in. loom operates at 65 to 66 ppm.

The crankshaft and camshaft are supported in roller bearings, and bushed bearings are used on the interior girders.

The loom has a negative let-off weighing motion to give evenly woven cloth and true selvage under uniform tension. Fabric can be woven without thick and thin places. One full-length or two half-length steel yarn beams with flanges up to 36 ins. in diameter may be used.

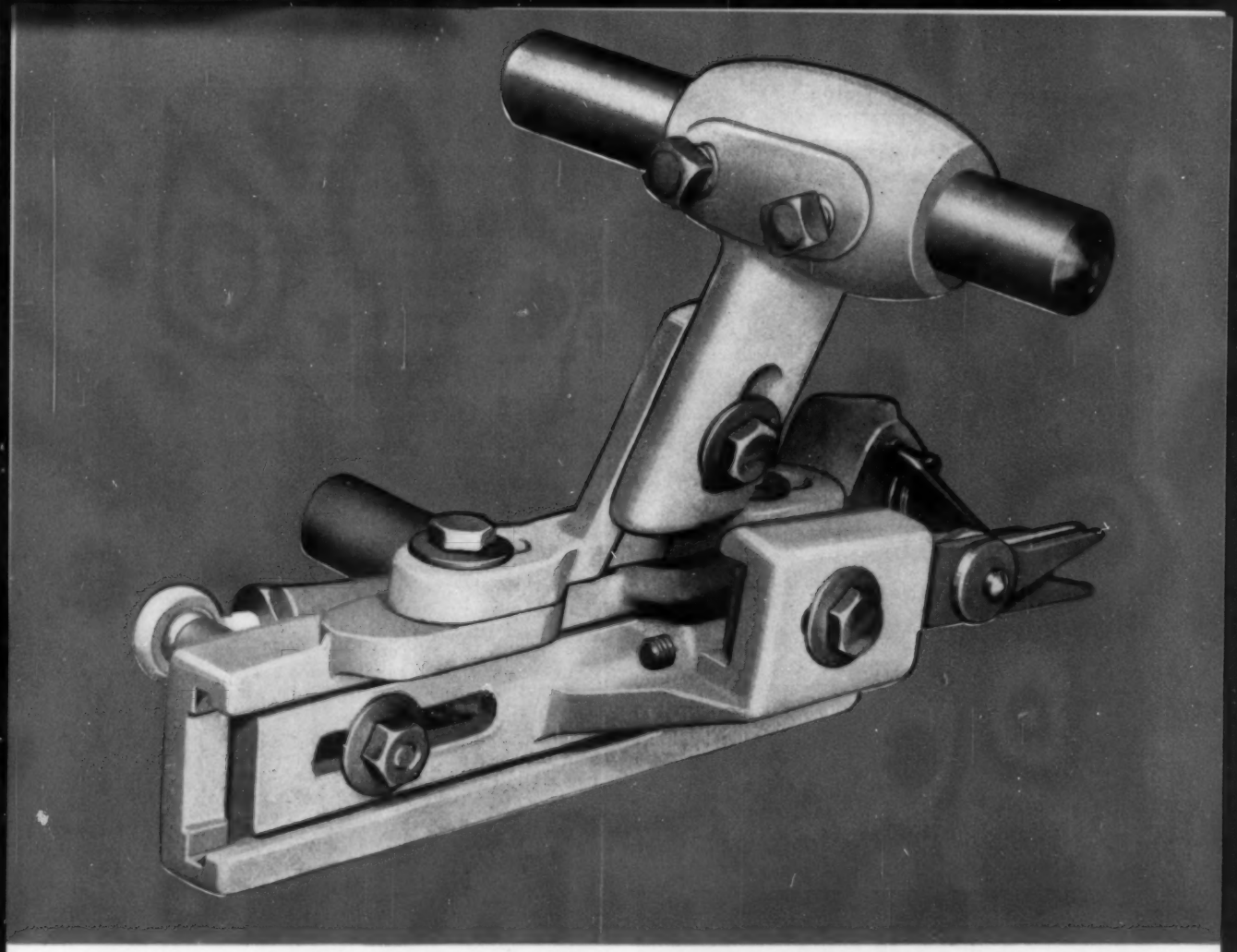
A vertical magazine transfers bobbins 14 ins. long and 1⅛ ins. in diameter to the shuttle. A mechanical feeler indicates bobbin changes.

A two-bank electric warp stop motion is used. The harness motion is driven by cams inside the loom. An auxiliary harness-cam shaft may be used in addition to the regular loom camshaft. The harnesses are controlled at the top by a roll-top harness motion.

The loom is equipped with a positive ratchet take-up motion with an automatic let-back arrangement that operates when the filling feeler fails or is not used. The take-up roll is spiked, and the cloth is wound on a 4½-in.-dia. wood cloth roll. A roll of cloth 31 ins. in diameter can be woven.

The loom is driven by four V-belts on each end of the loom. Two 1½-hp. motors are used.

Circle T-7 on Reader-Service Card



23,817 NOW IN USE
IN MILLS THROUGHOUT THE WORLD

Improved Filing Knife Assembly cuts and holds better on yarns ranging from 15 denier monofilament nylon to 4's cotton flannel napping.

. . . a sales record which proves the acceptance of the new #25 Draper Thread Cutter.*

Reasons for this widespread acceptance are:

1. Maintenance costs are reduced with 20 fewer parts used in assembly.
2. It is easily applied without changing existing parts on the loom.
3. Settings are easier to make — easier to maintain.
4. Drag-ins are greatly reduced.

23,817 mill applications also proves the #25 Draper thread cutter, with its full range of adjustments, increases production and lowers cost.

*Patents Pending

DRAPER CORPORATION

HOPEDALE, MASS.

ATLANTA, GA.
GREENSBORO, N. C.
SPARTANBURG, S. C.

Fiber-Fineness Indicator

The electronic fiber-fineness indicator made by Fiber Research Corp., 470 Atlantic Ave., Boston, Mass., is a desk-size machine to rapidly scan the diameters of fibers on a sample slide. The average diameter of the sample and the percentage of fibers whose diameters are within standard U. S. Dept. of Agriculture distribution groups are computed. The answers appear on direct-reading counters.

The machine is operated by one semiskilled technician. Up to 20 determinations per hour can be made. A group of several thousand fibers is cut from wool top sliver to a length about 200 microns. These cuttings are made parallel and transferred to a microscopic slide that is inserted in the fiber grader.

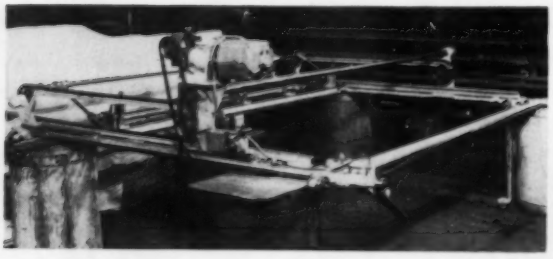
The operator presses a button and is then free to prepare the next slide because the counting operation is automatic. The slide passes through a beam of light. After each pass, the slide is mechanically indexed forward to bring new fibers into the beam. The slide motion is repeated until a count of 1,000 has been completed, and the machine automatically stops.

The image cast by each fiber is magnified and presented to a photo-multiplier tube that produces an electrical output signal when the leading edge of the fiber is seen by the tube. The output signal continues until the fiber trailing edge has passed. The duration of the signal is a measure of the diameter of that particular fiber.

The tube signal passes to a series of amplitude selectors to provide the counts of various fiber sizes. The averaging circuit remembers the time interval each fiber is in the light beam. When Fiber No. 1,000 has passed the slit, a direct measure is available of the 1,000 diameters.

The machine has an over-all minimum resolution of about 0.1 microns. The size is 5x3x4 ft. The power required is 110 v. single phase.

Circle T-8 on Reader-Service Card



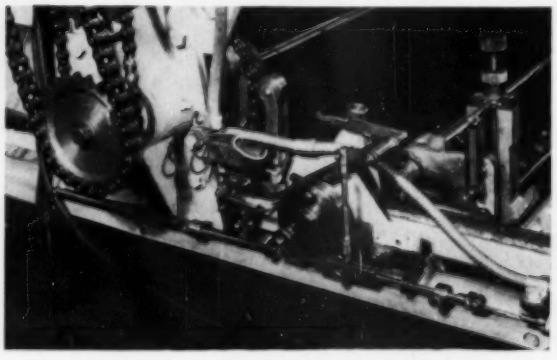
Screen-Printing Unit

An electrically driven squeegee-type screen-printing unit has been introduced by Wall & Co., Bolton, Lancashire, England.

The squeegee is actuated by a constantly running motor through a magnetic clutch. The squeegee can be preset for any number of passes and stops automatically after the sequence is completed.

Wide repeats up to 76 ins. can be printed with the machine. Registrative fittings are not required on the cloth frames.

The unit is made of light alloy metal, and the squeegee blades are supplied with edges in three degrees of hardness of various fabrics.



Circle T-9 on Reader-Service Card

Revolving-Flat Card

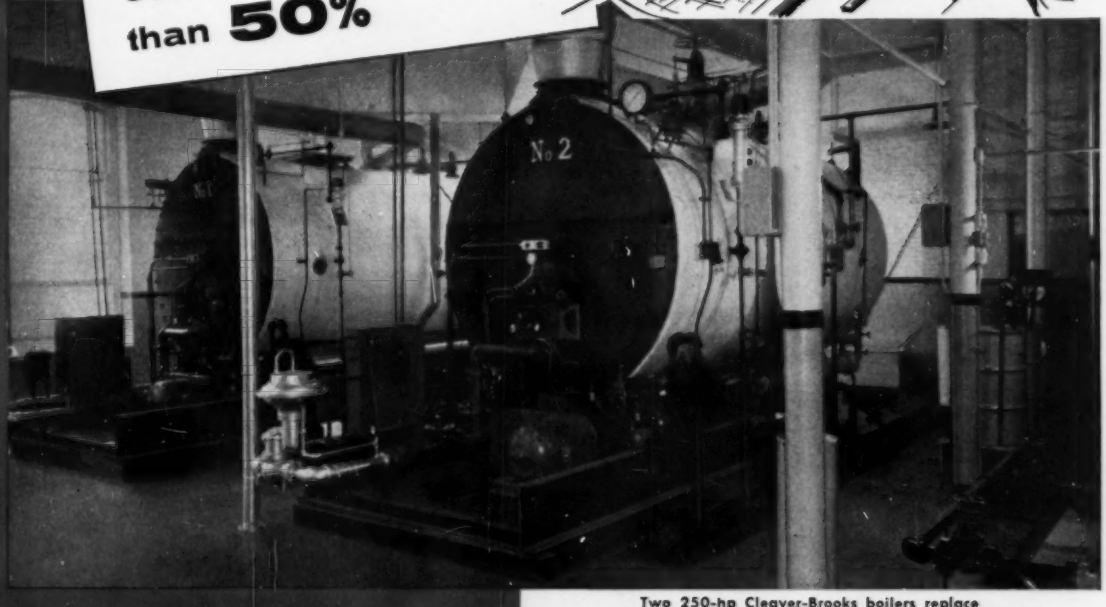
A revolving-flat card, Pattern C1, which has a 50-in. cylinder and 110 flats (42 working simultaneously), was introduced at the recent Swiss Industries Fair by Joh. Jacob Rieter & Co., Ltd., Winterthur, Switzerland.

The card has strong side shields that form a dustproof housing for the gearing; yet the gearing is easily accessible. The cylinder, lickerin, doffer, and doffer comb are all mounted on ball bearings.

The flats are set by means of flexible slide bends in five regulating positions, which practically eliminates the possibility of accidents.

Circle T-10 on Reader-Service Card

Newberry Mills survey showed plant engineers how to cut fuel costs more than 50%



Two 250-hp Cleaver-Brooks boilers replace four obsolete units. "Most attractive boiler room in the South," says Newberry Mills.

Two new Cleaver-Brooks boilers SAVE $23,445 the first year

G. B. Sessions, superintendent of Newberry Mills, says, "Eighteen months ago we installed two new Cleaver-Brooks boilers at Newberry Mills, Newberry, S.C., that are paying for themselves at a fast clip. At the present rate of savings, the boilers will be paid for in less than two years of operation. Fuel costs have been cut more than 50%."

When Newberry Mills engaged consulting engineers to analyze their heat and power load, they learned the startling facts of boiler obsolescence. They learned how they could cut operating costs with efficient boiler equipment. Their experience proves how the new boilers provided fuel and labor savings, a clean boiler room, free of soot, and reduced maintenance costs.

The savings on fuel for the first year of operation were an impressive $14,045.41. Maintenance savings amounted to $9,399.59. Periodic checks showed boilers performed at a fuel-to-steam efficiency of 82.88% on No. 6 oil.

Efficient Cleaver-Brooks four-pass construction with forced draft give you more for your fuel dollar. Four pass design maintains high gas velocity for effective scrubbing action. Forced draft design keeps fans running cool and trouble-free.

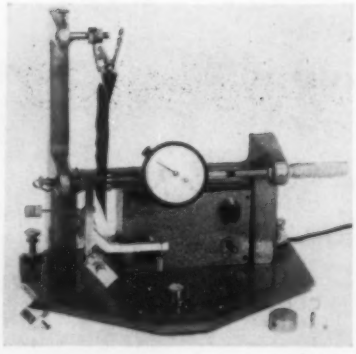
Send us your name to receive regular issues of new "Cleaver-Brooks Bulletin" — the boiler newspaper!

PERIODIC SURVEYS PAY. Find out how you can save with Cleaver-Brooks boilers. Get in touch with your local Cleaver-Brooks representative, or write: Cleaver-Brooks Company, Dept. F, 360 E. Keefe Ave., Milwaukee 12, Wis. Cable address: CLEBRO — Milwaukee — all codes.

Cleaver-Brooks®

TWENTY-FIVE YEARS OF LEADERSHIP
BY THE ORIGINATORS OF THE SELF-CONTAINED BOILER

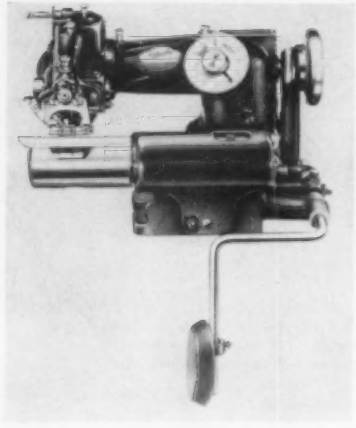
Fabric-Thickness Tester



Custom Scientific Instruments, Inc., 541 Devon St., Kearny, N. J., has announced its Model CS-49 low-pressure thickness gauge designed for determining the thickness of soft, bulky fabrics.

The manufacturer points out that the instrument has two advantages: (1) the fabric is suspended vertically to eliminate compression under its own weight, and (2) the fabric itself determines the end point of the test since both the pressure foot and the anvil are free to move during the entire test.

Circle T-11 on Reader-Service Card

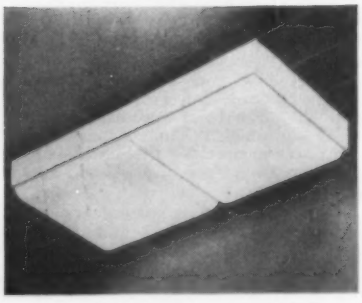


Mock-Fashion Machine

A new high-speed, compact mock-fashion machine for simulating the full-fashioned operation on sweaters has been introduced by Columbia Sewing Machine Corp., 315 W. 35th St., New York 1, N. Y.

The machine, Model 300-MF, uses a single-thread yarn or cotton thread and is fitted with adjustable gauges and a stitch-penetration adjustment to work on sweaters of all types and weights.

Circle T-12 on Reader-Service Card



Color-Matching Light

A fluorescent lighting unit that produces the equivalent of noon north light has been introduced by Duro-Test Corp., North Bergen, N. J. A Kelvin temperature of 7,500°F. provided by the light insures accurate color comparison for textile purposes.

Circle T-13 on Reader-Service Card

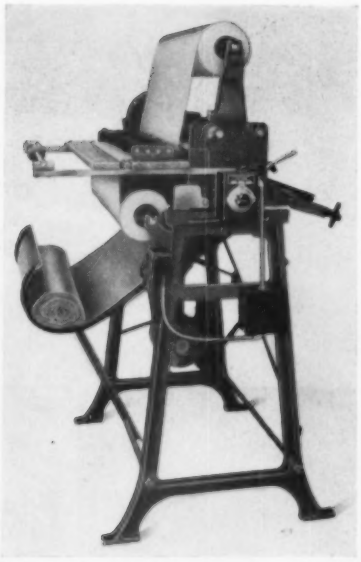
Intermediate Roving Frame

An intermediate roving frame fitted with sliver guide rods at the feed side and two rows of feed rolls was shown for the first time at the recent Swiss Industries Fair by Joh. Jacob Rieter & Co., Ltd., Winterthur, Switzerland.

The feeding arrangement improves sliver evenness and avoids false drafts. When a sliver breaks, the machine stops automatically and a lamp lights up to indicate where the breakage occurs.

The drafting system permits the use of considerably higher drafts than used heretofore on a frame of this type. The drafting area has four lines of fluted bottom rolls and three lines of top rolls. The top rolls are held in tiltable guide saddles with spring-loading. The double nip arrangement is said to produce a very even roving.

Circle T-14 on Reader-Service Card



Pleating Machine

A high-speed heavy-duty pleating machine that will produce krystal and Van Dyke pleats as well as scalloped effects has been introduced by Chandler Machine Co., Ayer, Mass.

The machine is supplied as a complete unit with motor, drive, and thermostatic control of the heating units. Permanent pleats can be produced in cotton, nylon, and other synthetic fabrics. Several models are available for various other types of pleats.

Circle T-15 on Reader-Service Card

Stiffness Tester

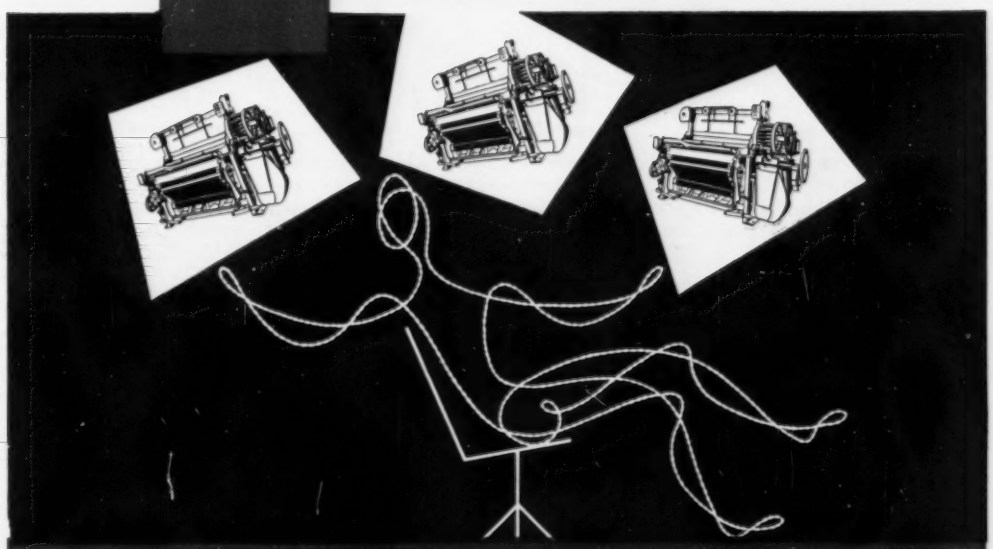
An instrument for testing the drape of fabrics has been announced by Fabric Development Tests, Box 45, Brooklyn 32, N. Y. The tester conforms to the new ASTM method D-1388-55T for testing fabric stiffness. Angle of inclination has been changed to 43° from 41½° to conform with British standards.

Circle T-16 on Reader-Service Card

CONTINUED ON PAGE 205

efficiency expert!

Q. **How do you make the loom work overtime... and not the weaver?**



A. **Keep your looms continuous with Continuous Process Rayon!**

No matter how many loom hours you figure on per week—you can top it. Switch to IRC Continuous Process Rayon... and suddenly you find that beating standard cost is simply daily routine.

No yarn is made so uniform from end to end, dyes so free of streaks, runs so free of breakdowns. Mile after mile, it's perfect inch by inch. In Continuous Process, it's 100% safe from the greatest cause of knots—no hands can ever touch it.

This is the yarn so free of knots, of breaks, of headaches that weavers of critical fabrics, like satin and iridescent taffeta, take pains to specify it. Yet it costs no more than ordinary rayon.

So why not give your looms a break instead of a breakdown? Specify IRC Continuous Process Rayon.

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CLEVELAND, OHIO

 For more information, write direct or use Reader-Service post card.

NEW DYES and CHEMICALS

Adhesive

Nopcoset B . . . an anionic polyvinyl-acetate emulsion of quick tack, good water resistance. Suggested as a binder in nonwoven fabrics. Nopco Chemical Co., Harrison, N. J.

Circle D-1 on Reader-Service Card

Bleach Assistant

Barisol BRM . . . a phosphated compound that prevents formation of scum and dirt in saturators of continuous peroxide-bleaching ranges. Build-up of silicate deposits is reduced when the product is used, and impurities in the goods are more easily removed in subsequent washing. Dexter Chemical Co., 819 Edgewater Rd., New York 59, N. Y.

Circle D-2 on Reader-Service Card

Fatty Acid

Emersol 213 . . . light-colored single-distilled oleic acid of low titer suitable for adjusting sulfonated oils. Emery Industries, Inc., Carew Tower, Cincinnati 2, Ohio.

Circle D-3 on Reader-Service Card

Rayon-Yarn Finish

Nopco 2221-P . . . modified castor-oil ester useful in rayon-yarn finishing. The product is soluble in mineral oil. Nopco Chemical Co., Harrison, N. J.

Circle D-4 on Reader-Service Card

Synthetic Detergent

Nekal BXW Paste . . . is an alkyl aryl sulfonate designed for wetting, foaming, and dispersing properties. Textile applications are chiefly in the detergent field. Badische Anilin & Soda Fabriken AG., Ludwigshafen, Germany.

Circle D-5 on Reader-Service Card

Direct Dye

Pyrazol Fast Blue FLL . . . produces level, greenish-blue fast-to-light shades on cellulosic fibers. Little or no change in lightfastness occurs when fabrics dyed with this color are resin-finished. Sandoz Chemical Works, 61 Van Dam St., New York 13, N. Y.

Circle D-6 on Reader-Service Card

Softener

Nopco 1525-L . . . a polyoxyethylene ether of an alkylated phenol polymer, this product is suggested for textile softening and for antistatic finishes. Nopco Chemical Co., Harrison, N. J.

Circle D-7 on Reader-Service Card

Sterile Finish

Eversan . . . can be applied during bleaching, dyeing, or finishing processes and is claimed to produce a permanent germ-killing effect for the life of the fabric. Goods treated with the product will recover over 99% sterility within 4 hrs. of being soaked in a highly contaminated solution. Yardney Chemix Corp., 44 Leonard St., New York, N. Y.

Circle D-8 on Reader-Service Card

Sodium Chlorite

Atco Chlorite . . . available for the bleaching of polyamide, acrylic, and polyester fibers, the product is free-flowing and contains an inhibitor that reduces corrosion of stainless steel.

A supplementary product, **Bleaching Auxiliary HV**, is offered to use with sodium chlorite to reduce fuming. Metro-Atlantic, Inc., P. O. Box 1207, Greenville, S. C.

Circle D-9 on Reader-Service Card

Surfactant

Scourpen 1341 . . . anionic surfactant that emulsifies all types of oils; is effective at pH 3 to 12. Recommended for soaping off vats and naphthols. Richmond Oil, Soap & Chemical Co., 1041-1043 Frankford Ave., Philadelphia 25, Pa.

Circle D-10 on Reader-Service Card

Surfactant

Isomal 265 . . . a concentrated sulfonated-ester-type liquid useful in wetting, rewetting, and penetrating in scouring and dyeing operations. The product is soluble in water and can be dispersed in many common solvents. Chemical Div., Johnson-March Co., 1724 Chestnut St., Philadelphia, Pa.

Circle D-11 on Reader-Service Card

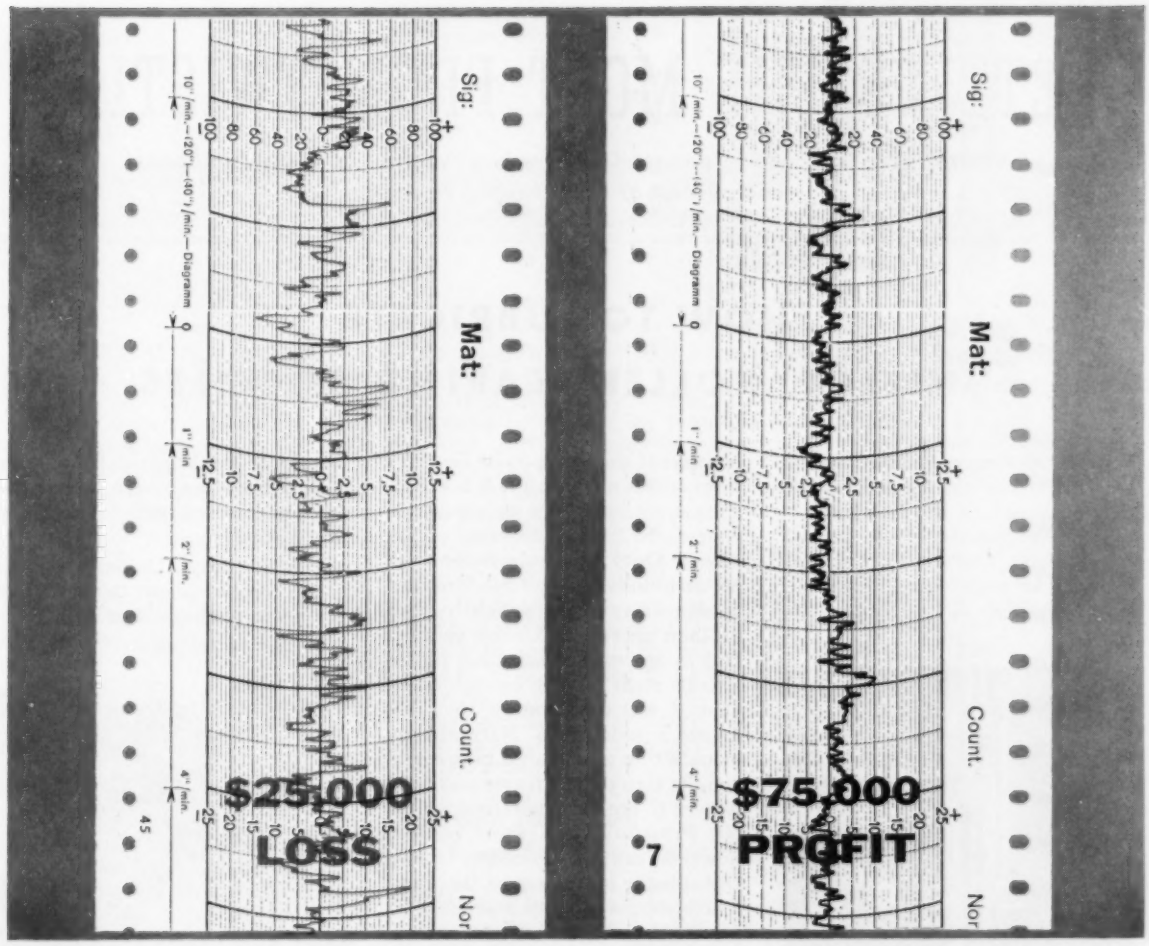
Plasticizer

Nopco GS-10 . . . a hydroxylated aliphatic amine similar to glycerine in some physical properties. Suggested as an internal plasticizer in thermosetting resins, as a humectant, and as a softner for cellulose. Nopco Chemical Co., Harrison, N. J.

Circle D-12 on Reader-Service Card

Correction

On page 160 of the February issue of TEXTILE WORLD, the tradename of a new Rohm & Haas Co. lauryl alcohol was misspelled. The correct name of the product is **Dytol J-68.** We regret the error.



TALE OF TWO YARNS

It actually happened.

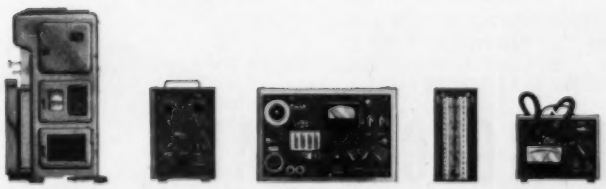
Uster testing equipment made this difference to one manufacturer—and this is *not* an isolated occurrence.

Today's high rate of production multiplies the *slightest* delay into thousands of dollars. Uster pinpoints trouble *as it happens.*

Progressive mill operators reduce delay even further by installations in each plant. With Uster's watchful eye detecting trouble spots, executive minds are freed for all-important marketing and policy decisions.

Individual plant installations give superintendents exact and immediate pictures of production in each department. Immediate location of faults means less down time, fewer costly re-runs.

In a highly competitive market, *Uster assures more profits,* because Uster assures maximum efficiency from every dollar invested in textile machinery.



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THIS IS NO. 116 OF A SERIES ON

GETTING THE MOST FROM TWISTING

Information about twisting designed to show improvements in twisting equipment and new ideas in the twisting operation

HOW TO LUBRICATE UNIFLEX® ROLLER BEARING SPINDLES

Oil spray from a spindle step is a hazard to clean yarn production. It may be caused by the pumping action of a spindle blade created through poor belt and idler adjustment or through over-lubrication. But regardless of the cause, the

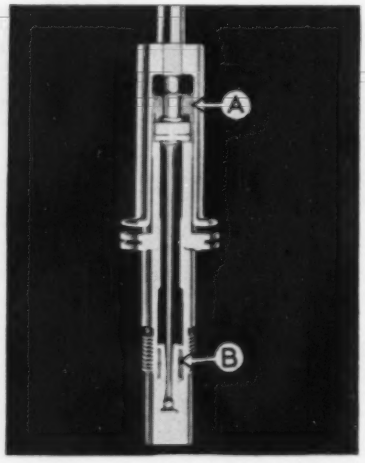


Fig. 1

spray can only occur when a reservoir of free oil is used in the spindle step. That's why Uniflex Roller Bearing spindles were designed to run with no free oil in the step. The only oil needed by the Uniflex spindle is a light film on the bearing areas of the lower blade. This oil is metered through porous bearings from oil-saturated felts (A & B Fig. 1) that act as storage chambers. Of course, the floating footstep of the Heavy Duty Uniflex spindle must be surrounded by an oil film and consequently requires slightly more oil than the regular Uniflex spindle. But in no case should either of the spindle steps contain enough oil so that it will drain out if they are turned upside down. Naturally, it wouldn't be practical to take every spindle step off the frame and turn it over to see if it contained excess oil. Practically the same results, however, can be obtained by taking the spindle blade out of the step. There should be only a small drop of oil that clings to the tip of the blade for a while before falling lazily off it. If a number of drops drip off the blade in rapid succession, the spindle step is over-lubricated.

While the excess oil is not harmful to the spindle itself it will decrease the benefits of cleanliness, an important feature of the Uniflex spindle. So it is to a mill's advantage to follow the prescribed lubrication procedure outlined for these spindles and to guard against using excessive amounts of oil in Uniflex spindle steps.

Regular Uniflex spindles are ready to run as shipped, but they should be relubricated before running if they have been stored two months or more between shipment and installation.

Heavy duty Uniflex spindles should receive about twenty drops of oil before they are placed in operation. (Twenty drops are equal to

Fig. 2

one full stroke on oiling device GM 5509X shown in Figure 2.)

The spindles need not be run in after installation but they should be checked for abnormal heating after about eight hours loaded operation.

Complete instructions regarding the lubrication of Uniflex spindles can be obtained by writing to Universal Winding Company.

May 1956 — 23.5.9

WINDING AND TWISTING MACHINERY FOR NATURAL AND SYNTHETIC YARNS

UNIVERSAL WINDING COMPANY

PROVIDENCE BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA LOS ANGELES MONTREAL and HAMILTON

QUESTIONS and ANSWERS

▶TEXTILE WORLD'S editors are at your service to help solve your problems in yarn manufacture, weaving, knitting, dyeing, finishing, or other textile operations. If you have a technical problem bothering you, send it along to the Editor, Questions and Answers, TEXTILE WORLD, 201 E. Coffee St., Greenville, S. C.

Two Ways To Improve Denim Selvages

Technical Editor:

How can denim cloth be finished so that the selvages lie flat and not fluted or wavy? (9960)

Denims are usually woven with a plain selvage that consists of extra warp ends woven closer together than the yarns in the body of the cloth. Fluted selvages cannot be completely overcome when this construction is used. Tape selvages will cause less trouble, but these selvages are generally used for more-expensive cloths.

If you must use a plain selvage, make sure that all yarns at the selvage are even and not heavier than the body yarns. Check that the correct tension is on the selvage threads during weaving and see that the shuttle tension is not too great.

You can also stagger the selvage to prevent the selvage becoming superimposed on itself as the roll is built up. Place a swinging roll between the machine and the batcher, and it can be worked by the cloth movement over the rolls.

Wind High-Bulk Orlon Yarns Damp

Technical Editor:

We are having trouble when we wind dyed high-bulk Orlon from skeins to cones. The yarn clings to the hands and clothing of workers and gives lots of trouble. What can we do? (9955)

Low relative-humidity conditions accentuate static problems. The problem seems to be more prevalent in the winter than in the summer. Two methods for reducing the problem have been found effective. They are:

(1) Wind damp skeins. Extract the dyed yarns but do not dry them. If the yarn dries out before winding, raise the humidity in your winding room with a conditioning system.

(2) Use an antistatic agent on the yarn. An application of an antistatic compound will reduce static in conditions down to 25% r.h. In the summer, 1/22s to 1/33s yarn can be wound successfully when finished with only 0.75% Avitex NA. The amount may have to be increased to 1.5% in the winter.

Don't use excessive amounts of the agent because they tend to overlubricate and weaken the yarn.

Use One Jute Card For Running Rayon

Technical Editor:

We use a breaker card and then a finisher card for jute. Are they both used for rayon yarns, or is just one card used? What type of spinning frames are considered best, and what is the draft? Is the run system (based on 1,600 yds. per lb.) used for yarn numbering? (9958)

The common practice is to use just one jute card in running rayon. This card is equipped with a large feeder of the Bramwell type so that a uniform amount of stock is deposited on the feed apron of the card. The card has the feed apron usually found on a finisher jute card.

For adequate carding of rayon, the lags and workers of a jute card should be repinned with much finer pinning than is normally used on jute. At the delivery end of the card, a single sliver is delivered into large cans or some equivalent container.

A gill spinner with suspended flyers, of the kind normally used for spinning jute yarns, is the best type for this system of spinning. Jute spinning frames are geared to give drafts much higher than 10.

Mills that use the jute system of spinning normally refer to the yarns they spin as being of a certain number of yards per pound, such as 760-yd. yarn or 1,500-yd. yarn.

No Official Standards For Wool Slivers and Yarns

Technical Editor:

Do standards, in terms of standard variation and coefficient of variation, exist for each operation of a modified French drawing system? (9934)

There are, as yet, no official standards for wool slivers and yarns. There are suggested standards for linear and quadratic integrators. These standards appear to be based on the degree of perfection or irregularity index expressed by the ratio.

$$\text{Degree of perfection} = \frac{CV_A}{CV_R}$$

where CV_A is the measured irregularity, i.e. the coefficient of variation within a length usually greater than 6 yds., and CV_R is the coefficient of variation due to the random distribution of wool fibers calculated from the expression—

$$CV_R = \frac{112}{\sqrt{n}}$$

where n is the number of fibers in the cross section of the sliver or yarn.

Simple formulas for calculating CV_R for wool slivers and yarns are—for slivers

$$CV_R = \frac{\text{Mean dia. of fibers in microns}}{2.4 \times \sqrt{\text{grains per yard}}}$$

for yarns

$$CV_R = \frac{\text{Mean dia. of fibers in microns} \times \sqrt{\text{worsted yarn number}}}{8}$$

Since with present processing methods perfect yarns cannot be made, the value of the degree of perfection must always be greater than unity. The value of 1.2 given for very-even yarns suggests that yarns approaching perfection can be made, but this is not the case.

Values for irregularity obtained from the integrators of capacitance-type testers are neither percentage deviation from the mean nor coefficient of variation within length values. If the condenser unit has plates 1 cm. long, the figure is a measure of the irregularity between 1-cm. lengths within a length (L). The expression

for total irregularity becomes—

$$CV^2_{(1cm)} + CB^2_{1cm/L} + CB^2_{(L)} = CV^2_{(T)}$$

Where $CV^2_{(1cm)}$ is the irregularity within 1-cm. lengths.
$CB^2_{1cm/L}$ is the irregularity between 1-cm. lengths within lengths L.
$CB^2_{(L)}$ is the irregularity between lengths L.

At the present there is no simple method of obtaining a value for the first term, and the irregularity index ignores the third.

The idea of an irregularity index is sound because checking measured CV (or CB) values against random CV at all stages of processing gives an idea of the degree of control.

Literature in this field often makes no reference to the lengths (L) within which the CV is measured. This may be due to CV_R having no reference length. Reference to the variance-length curves will show that if the lengths (L) chosen are short, the $CV(L)$ values will be low and vice versa. Obviously, low irregularity indices can be obtained if the selected lengths (L) are short enough.

The above implies that the mean diameter of the fibers is known, but for mills not possessing projection microscopes or other fiber-diameter measuring means, a satisfactory method is to calculate the regularity or R factor for each process. The expression for degree of perfection

$$\frac{CV_A}{CV_R} \text{ can be rewritten } \frac{CV_A\sqrt{n}}{112}$$

and since n is proportional to the weight per unit length of the sliver or yarn, the value

$CV_A \sqrt{\text{grains per yd. of sliver or yarn}}$ or R factor is proportional to the degree of perfection.

When all drawing and spinning operations are under control, the R factor decreases at each succeeding operation. This method of quality control is as simple as any, and it is quite easy to set up standards for each quality of wool or any fiber.

The measured CV decreases through finisher gilling and drawing, independent of the processing system, down to a minimum value for slivers of about 30 grains per yard. The regularity then increases rapidly through roving and spinning.

Rayon Garnetts Cause Roving Variation

Technical Editor:

We are running 2½-in. rayon garnetts on Whitin two-cylinder cards with covers, Scotch feeds, tape condensers, and Bramwell feeds. Our roving weight is 224 grains for 60 yds., but we get too much variation. What can we do? (9939)

Rayon garnett is sometimes lumpy with unopened threads. A Peralta attachment would help to crush these parts and smooth the stock.

Your covers will retain fly that goes all the way to cause lumps in the roving.

Check whether the emulsion distribution is even. The stock should not be too wet or too dry throughout the blend.

Check the weight-pan mechanism to see if the same amount of stock is dropped from the feed box. Check to see if the cylinders and workers are true and that there are no worn bearings. Is your card clothing in good shape?

Because your web is heavy, supporter rolls between the doffer and the entrance to the tape condenser are recommended.

Uneven tension of the web coming from the second doffer will cause uneven roving. See if your tapes all have the same tension. Worn-out tapes will make uneven roving.

If there are too many ends with heavy roving, the tapes steal fibers from each other to cause roving variation.

Keep the Stretch in Knitted Stretch Fabrics

Technical Editor:

We are knitting fabrics for underwear from stretch yarns and process this fabric in a dyebeck. This operation strains the fabric, and we end up with a greater length of smaller-width fabric with little elasticity. We tried several methods but either got bad penetration or creases. What can de do? (9944)

One mill solved the problem of retaining good elasticity by knitting the fabric into small pieces about 4 lbs. in weight.

The fabric is fed loosely into 24x36-in. mesh dye nets that are securely tied at the neck. No preparation is necessary if the fabric has been kept clean on the knitting machine and is intended for dyeing. Whites, however, require scouring. Here's how to do it:

Enter the bagged fabric into a paddle-type hosiery-dyeing machine at 120° F. with 2% caustic soda, 2% synthetic detergent, and 2% sodium hydrosulfite. Raise the bath to 200° F., and run for 30 mins. Cool to 120° F. over 10 mins., dump, and give two warm rinses.

Start a fresh bath at 120° with 0.5% Tinopal WGA and raise to 160° F. Slowly add 2% of 56% acetic acid, run for 30 mins., cool as before to 100° F., and unload.

Two things are important. Do not use a rotary machine, and cool down from a high temperature to prevent creasing.

For colored work, start off at 120° F. with a 2% good detergent and add dystuff, which is usually dispersed acetate colors. Raise the bath to 200° F., run for 30 mins., and cool. Rinse at 115 to 120° F.

After wet processing, hang the fabric in a loop dryer to relax further, and then roll or calender without stretching.

Applicator for Resin To Make Knotless Yarn

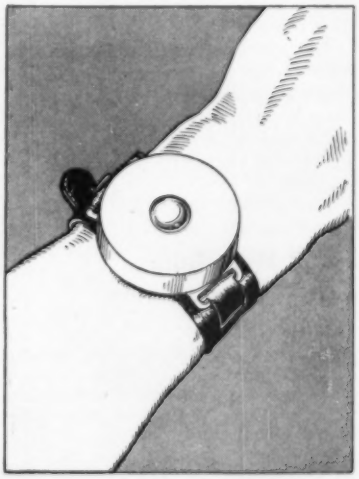
Technical Editor:

We read with interest the item about eliminating yarn knots with resin compounds [TEXTILE WORLD, Aug., '55, p. 137]. Is there a special applicator for the resin? (9971)

A patented British applicator is made for these resins that can be strapped to the wrist of the operator or to the spinning or twister frame. The reservoir, which holds the resin compound, is fixed to the strap. It has a metal ball that seals a hole in the top of the reservoir.

The adhesive is metered out on the operator's finger when she rubs her finger on the ball. The applicator lid can be adjusted to control the quantity of adhesive to be supplied.

To get the best joins, one of the yarn ends must be rubbed between the fingers to form a point. Latex is applied to this point, which is inserted in the teased-out end of the other yarn. The joint is then rubbed between the fingers for a few seconds until the latex has set.



LATEX APPLICATOR strapped to the operator's wrist supplies the correct amount of adhesive to the yarns to be spliced.

DEPENDABLE SERVICE

RELIABLE QUALITY

YOU GET BOTH WITH

COLUMBIA-SOUTHERN

CHROME CHEMICALS

SODIUM BICHROMATE

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Write today for this new booklet which describes the Columbia Chrome Chemicals, gives packaging and uses, outlines handling practices.

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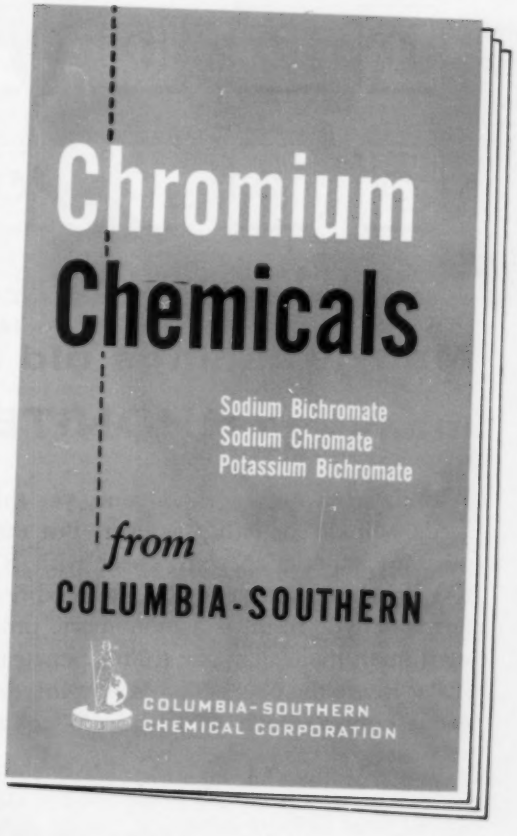

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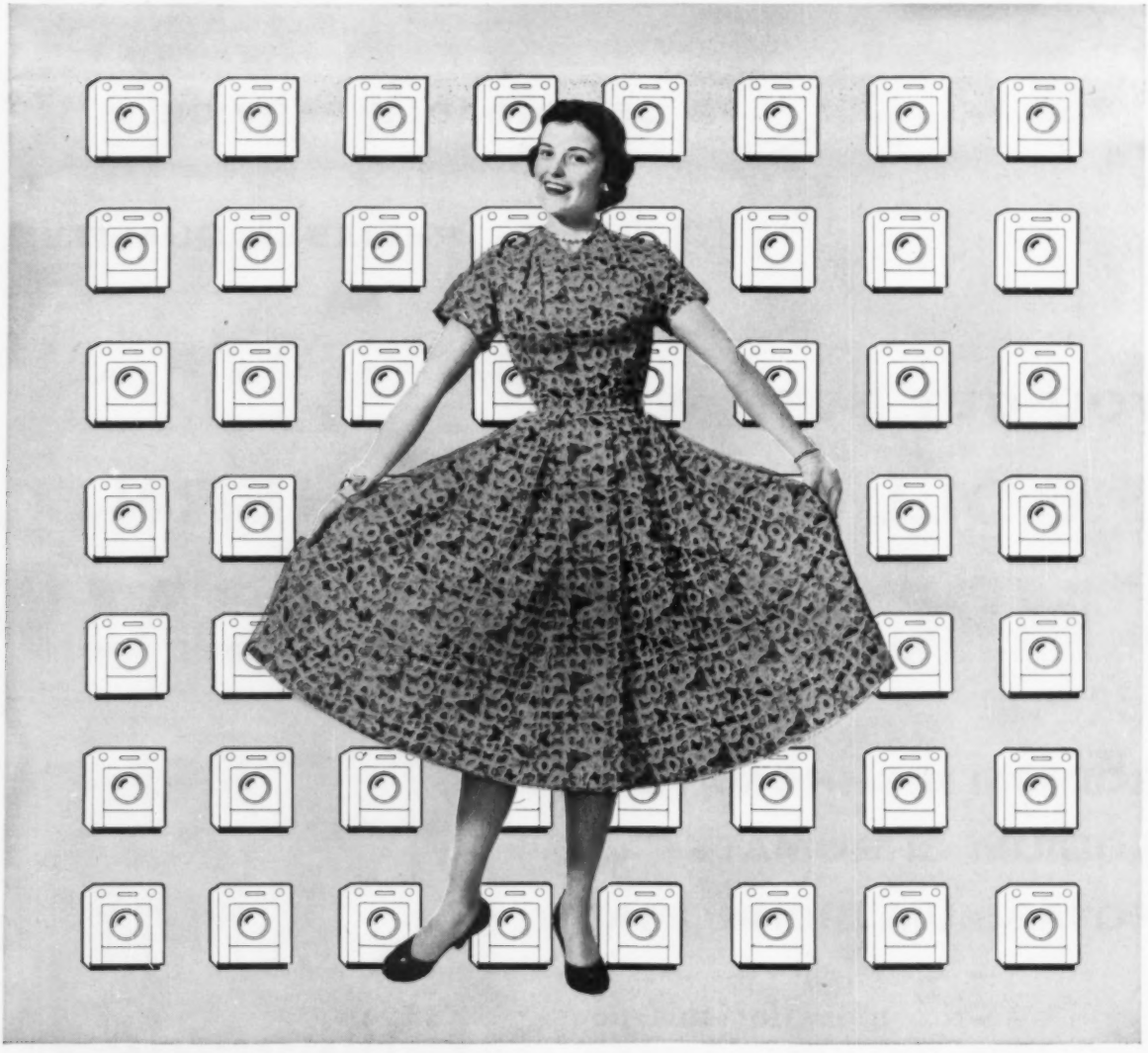
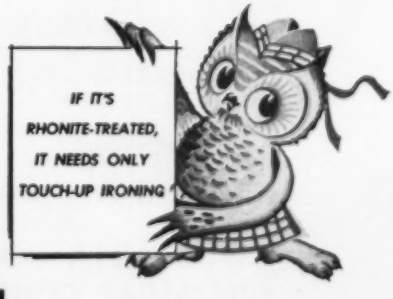


Many washings old and still wrinkle resistant thanks to RHONITE R-1

Washdays have come and gone, yet this dress sheds wrinkles as easily as ever. But that's the pleasant experience you expect with RHONITE R-1 finishes. RHONITE R-1, a modified urea formaldehyde resin, is a monomeric product of such small molecular size that it penetrates and reacts inside the fibers. That's why this dress still needs only a touch of the iron to look its best.



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KINKS and SHORT-CUTS

Spiral Spring Controls Schweiter-Winder Spindle

On our Schweiter automatic hollow-cop Type MT winders, some spindles did not return fast enough to clamp the yarn against the center bushing (Catalog No. 13324) after doffing; the units would stop prematurely.

Nothing seemed to be wrong with the machine; cleaning, lubricating, and adjusting did not remove the trouble. The addition of weights to the two side chains (13394) added to the momentum of the winding operation and resulted in loss of efficiency and wear and tear on the right side chain.

A spring attachment to control the spindle was devised as follows:

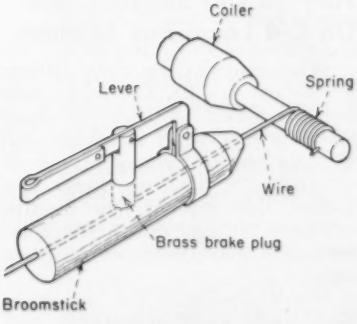
A $\frac{7}{16}$-in. hole was drilled in the gear cover (13342), and a spiral spring $1\frac{1}{2}$ ins. long by $1\frac{1}{4}$ ins. at its largest diameter was attached by a screw and nut.

At the time of doffing, the sledge (13359) draws itself back against the spiral spring; meanwhile, the grippers holding the wound cop are lowered; and as the sledge to which the spindle is fastened is being released, the spiral spring gives it just enough thrust in a split second to boost the spindle forward at the proper instant.

It was found that if there is too much forward thrust, the spindle coming out at too fast a speed may break the yarn before it is clamped against the center bushing (13324). To overcome this condition, a set of three different strengths of spiral springs mounted on extra gear covers is kept on hand; and after trial, the most suitable one is left permanently on the machine. The gear covers hold by means of two screws and can be put on or removed in a few minutes.

Many spiral springs have been installed on our cop winders over a two-year period, and they give great satisfaction. There are fewer ends down, and many steps are saved for the operator. (K-2900) *Maurice D. Chandler, Philadelphia, Pa.*

*[Numbers pertaining to the parts mentioned correspond to the Schweiter instruction manual.—*EDITOR]



Make Your Own Springs With Hand-Grip Feeder

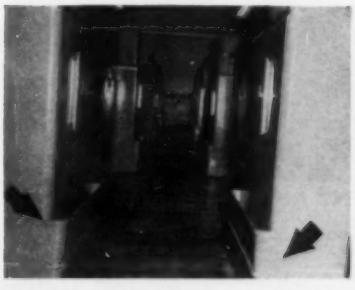
If you want to grip spring wire while winding a spring to your specifications, make the task easier by constructing a wire gripper from a piece of broomstick and a brass brake plug, as shown in the sketch. Use this tool properly, and you control the wire right up to the end of the winding. (K-2929) *Chas. H. Willey, Penacook, N. H.*

Ground Stop Motions To the Loom

On some types of looms, the ground wire for the electric stop motion is run all the way to the stop-motion switch. When the wiring becomes old, a lot of trouble is caused by the ground wire; and it is difficult to trace the trouble.

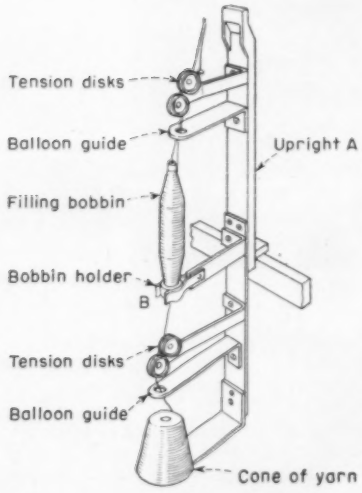
When we overhaul or repair a stop motion, we remove the ground wire and replace it with a shorter wire. We ground the short wire to the nearest part of the loom, the motor stand, for example. Usually, only a couple of feet of wire is required to ground the stop motion. But if the ground wire is run all the way to the switch, 6 ft. of wire is needed.

If 100 or more looms have to be rewired, a big saving is made on wire. And the short wire works better. (K-2879) *Charles S. Bicksler, Lancaster, Pa.*



Baffles on Pneumastop Keep Lint From Blowing

When we put Pneumastop on our roving frames, the strong air currents from the bottom of the collector unit blew lint and trash from the floor into the work. We soon stopped the trouble, however, by constructing baffles that fit over the air vents and direct the air currents upward. Our roving now stays much cleaner. (K-2887) *Johnston Mfg. Co., Charlotte, N. C.*



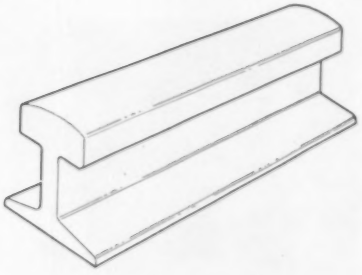
Make Slack-Twist Yarns On Any Filling Winder

We had a requirement for slack-twist core yarns and no special machinery for making such yarns. After some experimentation, we found that we could twist these yarns on our little eight-head stationary Abbott quiller; and we believe that similar yarn can be made on any filling winder. Here's how we do it:

We wind on filling bobbins one of the two yarns that we wish to twist together, and we place a cone of the other yarn on the bottom spindle. The yarn from the cone goes through a balloon guide, through a tension disk, and then up through a hole in the filling bobbin. Both yarns meet at the top of another balloon guide and go through a second tension. As the yarn comes off the filling bobbin, it wraps itself around the core yarn coming from the bottom spindle; this action gives a fairly even twist. On our machine, we make about two turns every 3 ins.

To adapt the quiller to this operation, we extended uprights *A* on the winder with 18-in. pieces of ⅜x2-in. flat iron, bolted as illustrated. Cone brackets were then moved to the bottom of the uprights. Extra balloon guides and tension disks were attached and spaced at normal intervals. We then replaced the cone brackets with bobbin holders *B* made from spare shuttle bobbin clips bolted to a piece of ⅜x1½x5½-in. flat iron bent to fit and hold the bobbins in an upright position in line with the center of the balloon guide. The yarn from the cone is threaded through the hole in the bobbin with a wire hook.

We have made a number of different slack-twist yarns of various kinds on our quiller, and we find the quality very satisfactory. (K-2926) *Leslie Hayter, Huntingdon, Que.*



Section of railroad rail

We Made a Handy Tool From a Piece of Rail

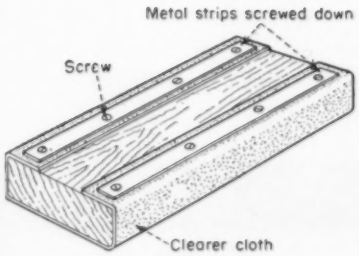
A short section of railroad rail makes a handy accessory for a mechanic's work bench. Being heavy, it is not necessary to fasten it to the bench. The rail provides a good surface for riveting and center punch work. It is also useful for bending heavy rods and flat iron. Use of this tool will save much wear on the vise and surface of the work bench. (K-2923) *Bob Abbott, Berwick, Pa.*

Wet Cones To Prevent Sloughing

If you have trouble with yarn, especially X-Bred and Mohair, sloughing off cones during winding, stop this waste by wetting the cones with water before you start winding. This practice will stop sloughing and produce well-shaped packages. (K-2927) *Leslie Hayter, Huntingdon, Que.*

$5 to $10 for any Kink accepted for publication. Each one will be entered in the $25 and $500 prize-winner contest.

Send in your Kink now.



How To Cover Flat Clearers

Loose clearer cloth on flat clearers can be both annoying and expensive if allowed to flap and cause ends down. Furthermore, loose cloth does not do a proper cleaning job.

An easy way to cover flat clearers so that the cloth will not come loose is to pull the cloth over the outside edges of the clearer board and attach it to the board with light metal strips screwed down tight.

This system works better than gluing the cloth to the slat. Cloth life is lengthened, flapping cloth is prevented, and the cloth can be removed easily for washing or replacement. (K-2901)

How To Cut Supply Costs On C-4 Loom Box Motions

When only two-box cloth patterns are woven on C&K C-4 looms with four-box whorl motions, the front whorl motion wears excessively and the back whorl receives no wear at all. Consequently, when we change to a pattern that requires four shuttles, it's hard to align the shuttle boxes with one whorl worn and one not worn.

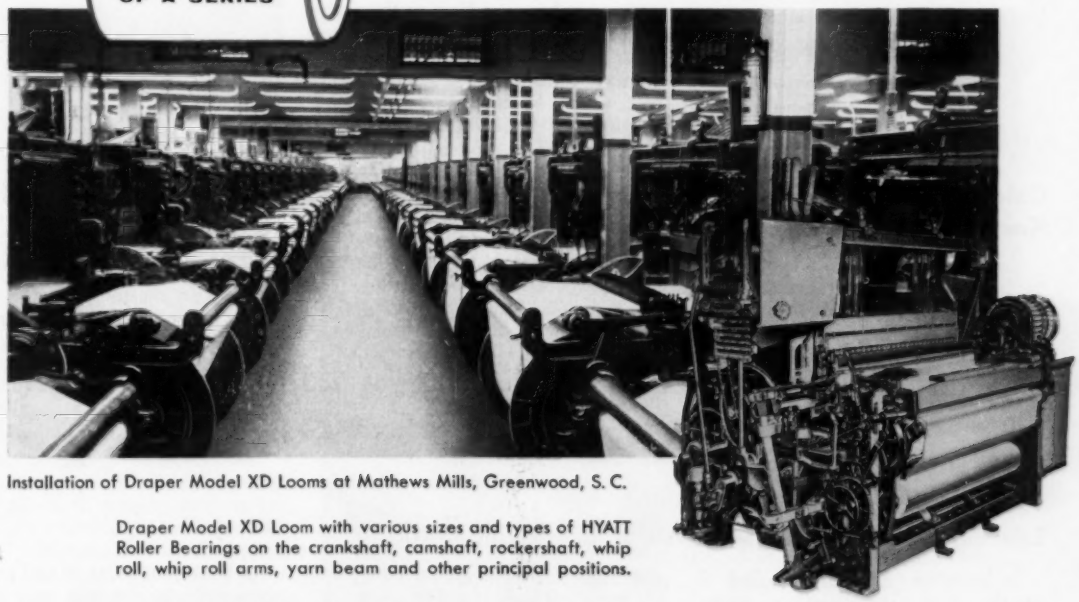
We've eliminated the trouble by using both whorl motions on two-shuttle weaves to equalize the wear on the whorls. On two-shuttle weaves, we build the box chains to run the second and third boxes. The front whorl operates the second box, and the back whorl operates the third box; the shuttles are run in the second and third shuttle boxes.

Since we've been using this method, our supply costs are lower and our seconds are reduced because box motions can be aligned closer. (K-2765) *Bernard Dixon, Danville, Va.*

TESTED WAYS TO ASSURE MORE PROFITABLE TEXTILE PRODUCTION

ONE OF A SERIES

HYATT ROLLER BEARINGS REDUCE BEARING REPLACEMENTS 75% OR MORE IN MANY CASES



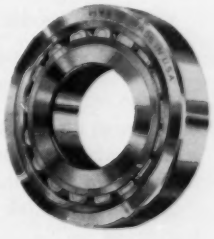
Installation of Draper Model XD Looms at Mathews Mills, Greenwood, S. C.

Draper Model XD Loom with various sizes and types of HYATT Roller Bearings on the crankshaft, camshaft, rockershaft, whip roll, whip roll arms, yarn beam and other principal positions.

In many mills, the life of key textile machinery bearings has been *trebled, quadrupled or lengthened even longer* by switching from a plain friction type to antifriction HYATTS.

For example, tens of thousands of loom rockershaft installations, many of which have operated as long as *twenty years*, prove conclusively that the life of a HYATT Roller Bearing is *at least four times longer* than a plain bearing at this position. This means rockershaft bearing replacements are reduced at least 75%! Moreover, when new HYATTS finally *are* needed, new housings or shafts are very seldom necessary. Neither is costly fitting, since precision-built HYATTS are interchangeable. Thus you are assured of not only greatly reduced bearing replacement costs, but also substantial cuts in nonproductive down time.

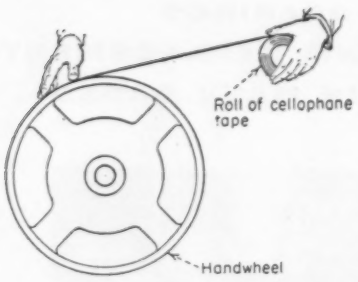
Be sure to specify roller bearings by HYATT—America's *first* and *foremost* roller bearing builder — when you modernize or replace *any* of your machines. For further details on the profitable application of HYATTS to textile machinery, request Bulletin T-54 from Hyatt Bearings Division of General Motors, Harrison, New Jersey.



NO TEXTILE MACHINE IS BETTER THAN ITS BEARINGS!

HYATT ROLLER BEARINGS

STRAIGHT BARREL TAPER



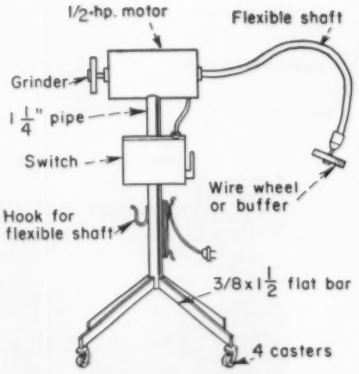
Colored Cellophane Tape Keeps Cloth Clean

Keeping handwheels on looms clean has had much to do with keeping cloth clean. Oil from the dobby drips on the handwheel on the head end of a loom, and oil from picker rods and other moving parts is slung on the handwheels on both ends of the loom.

Because this oil is hard to remove from the handwheels, weavers often get their hands dirty before they draw in a broken warp end or handle filling yarn. The oil from the handwheel is also transferred to the shipper handles by the weavers' hands. Consequently, the woven cloth is often soiled.

We have been working on the problem of dirty handwheels for four years at our mill. All our tests were made on Crompton & Knowles S-6 looms. We have about licked the problem by covering the handwheels with cellophane tape. The tape is 2 ins. wide; and since the banded surface of the handwheel is only 1¼ ins. wide, the tape is pressed over the edges of the handwheel and fastened securely. We use several colors of tape, and the colors make the looms more attractive. The tape also lasts for several years.

The tape sheds oil easily and is easy to clean. Therefore, weavers' hands stay clean, and woven cloth is much cleaner. (K-2888) *Charles R. Batzer, Lancaster, Pa.*



Portable Rust Buffer

The illustrated portable buffer is a big help in cleaning off rusty pipes and removing slag and splatter from welding. The buffer is mounted on swivel casters and is very easy to pull around the shop. The flexible shaft makes it easy to get at hard-to-reach places. (K-2781) *The Stabilizer*

Leather Valve Packings—Flesh or Grain Side Out?

A question frequently asked is whether leather packings used in hydraulic and pneumatic valves should be installed with the grain or flesh side out. Where hydraulic packings are concerned, there is no great difference. The packings are usually made with the grain side out for better appearance and easier molding.

Pneumatic packings usually hold better with the flesh side out. This is especially true where the packings pass port holes, such as in elevator valves, or if the cylinder is somewhat worn.

An important point: A shallow packing usually lasts longer and is more efficient than one of greater depth. There is no hard-and-fast rule on this point, as local conditions enter into the picture. (K-2930) *W. F. Schaphorst, Newark, N. J.*

$500 for Best Kink in 1956 - - - $25 for Best Kink Each Month

Plus $5 to $10 for Every Kink Accepted

What Is a Kink?

Any idea that will

- **Cut costs**
- **Improve quality**
- **Reduce work**
- **Increase production**
- **Make work easier**

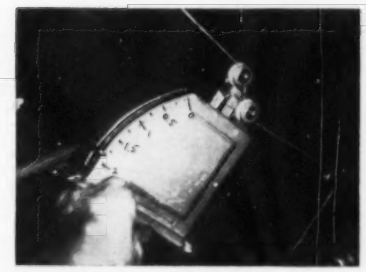
The idea may be one for improving machines, some attachment for a machine, a short-cut way of doing something, a labor-saving device—any idea at all that helps a mill man run his job better or easier.

Send in your Kink now. There is always a contest going on.

RULES OF CONTEST

1. No limit to number of entries.
2. New $25 prize contest every month, $500 prize contest for the year. Monthly contest confined to Kinks published that month, yearly to those published in calendar year 1956.
3. All Kinks paid for on acceptance; extra payment for photographs. Drawings need not be finished (clear detailed pencil sketches will do).
4. Previously published material not eligible for prizes.
5. Unless you advise to contrary, we assume we may sign your name to Kink when published.
6. Prize winners will be selected by readers, a different group each time. At least 200 will be asked to select preferred Kinks in each issue. Their votes will select the best Kinks, and their decision will be final. In cases of ties, duplicate prizes will be awarded.

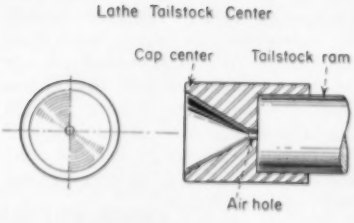
Send Kinks to:
KINKS CONTEST, TEXTILE WORLD
201 E. Coffee St., Greenville, S. C.



How To Make A Tension Meter

To make a rugged, reliable tension meter at practically no cost, take an old postal scale with a range up to 2 lbs. and rig it as illustrated. Remove the top plate and fasten two small rollers to L-shaped metal brackets. Attach one roller to the top of the housing and the other to the rod that activates the spring. The scale must be recalibrated to compensate for replacing the weighing platform with a roller.

Use to check yarn tension as you would any store-bought tension meter. (K-2839) *Maurice D. Chandler, Philadelphia, Pa.*



Try This Idea When Your Drill Is Too Large

If you do not have room between the lathe centers to use a chuck held in the tailstock ram or if your drill is too large for the chuck, try this:

Make a cap center that is a close fit on the tailstock ram and drill through it as shown. Carefully center the cap center from the opposite side, and it will hold the shanks of ⅛-in. drills and up.

To use, fasten a lathe dog on the shank of a drill and let it ride on the tool carriage while drilling. For deep holes, the carriage can be free to travel with the hand-fed ram. (K-2928) *Walter A. Simond, Essex Junction, Vermont*

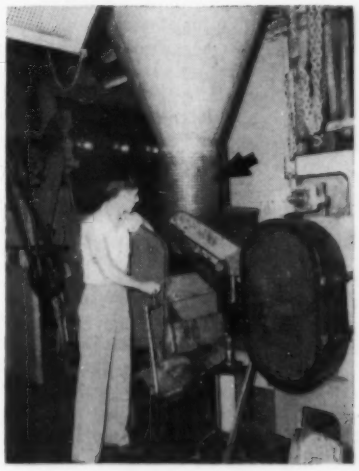
Best-Kink Award for March

Each month TEXTILE WORLD awards $25 to the submitter of the Kink judged by a panel of over 200 practical mill men as the best for that particular month. A new batch of Kinks appears each month, and a new group of readers acts as judges each month.

If you are asked to judge one of these days, be sure to help select the best Kink by sending back your answers in time for final tabulation. Closing date for judging is the last day of the month in which the Kink appears.

The best Kink for March, according to TEXTILE WORLD reader-judges, was:

"Conveyor-Dolly Cuts Handling Costs 50%"

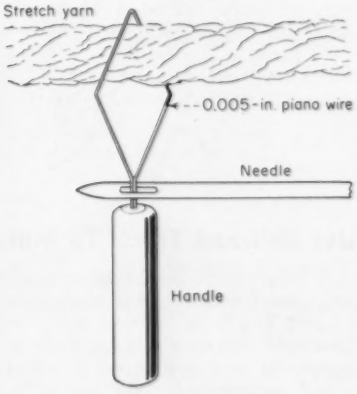


Extra Condenser Fluffs Orlon

Our mill processes a great many wool-Orlon blends. Before blending, the wool and Orlon are raw-stock-dyed, usually separately. We used to have trouble occasionally with the Orlon matting or packing in the drying train. The problem was solved by adding to the feeder hopper an extra condenser (arrow) that gives the fiber additional fluffing before it proceeds to the roller-distributor for sandwich blending. (K-2899)

$5 to $10 for any Kink accepted for publication. Each one will be entered in the $25 and $500 prizewinner contest.

Send in your Kink now.



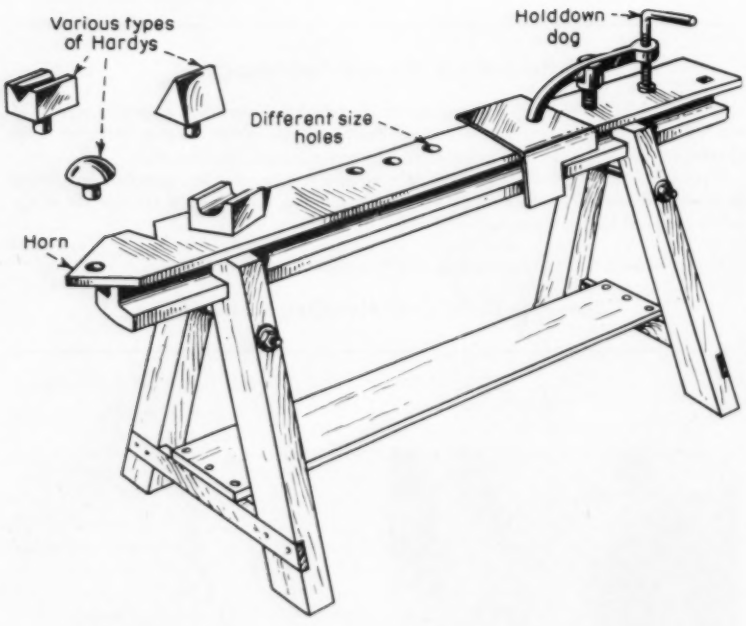
A Quick Way To Thread Stretch Yarn

Because of bulk, stretch yarns are difficult to thread through small holes such as the eye of looper needles. Some people plasticize the end of the thread with finger-nail polish. Others tie a cotton thread to the stretch yarn and thread the cotton first. We use a method that is much quicker. Here's how you do it:

Bend a piece of 0.005-in. piano wire in the shape of a diamond. Drill a small hole in a wooden handle or in a plastic toothbrush with the bristles cut off. Force the free ends of the wire into the small hole.

To thread the stretch yarn through the needle eye, push the point of the diamond through the eye. When the wire is pushed in as far as the handle, the diamond shape will reappear and the stretch yarn is threaded through the diamond.

The wire holding the yarn is then pulled back through the eye, and the stretch yarn is threaded in just a fraction of the time required by the other methods. (K-2914) *H. J. Haas, Martinsburg, W. Va.*

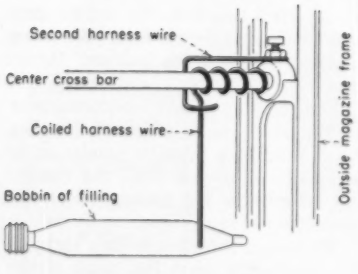


Use Railroad Track To Make Special Tool

A heavy-duty combination work horse, anvil, and stake tool made from a short length of railroad track, as illustrated, can be a valuable piece of equipment in a mill shop. I find it almost indispensable. We use it for all sorts of work that cannot be handled on the ordinary anvil or bench tool.

The addition of a hold-down dog makes it more useful; a few holes tapped at different points in the rail permit the dog to be moved about when necessary.

Two such dogs make clamping of the work to the anvil very easy. For example, sheet metal can be clamped by two dogs while it is being formed over the edge of the rail. (K-2885) *Chas. H. Willey, Penacook, N. H.*



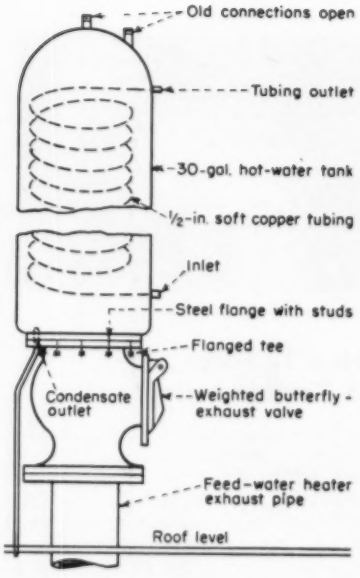
Device Stops Bobbins Hanging on Transfers

On our Crompton & Knowles bobbin-changing looms, we used to have trouble with the new bobbin of filling rolling up the bobbin release and away from the hammer at the bobbin transfer. We have made several gadgets during the past years to eliminate this trouble. Now we have a simple gadget that's easy to make, and it guides the bobbin accurately.

We coil a section of old top harness wire (leader wire) around the center cross bar located in the outside magazine frame. We make at least four coils in the wire. The end of the wire hangs down through the magazine but clears the loom lay, as shown in the sketch.

Another section of harness wire is attached to the setscrew that holds the center cross bar. Then the second piece of harness wire is bent around the coiled wire to hold it in position. With this setup, the coiled wire is free to swing.

Now the new bobbin of filling is guided directly under the transfer hammer, and hanging is eliminated. (K-2572) *Stephen Vernarec, Wallington, N. J.*



Use Waste Steam To Heat Water Cheaply

If your power plant has a feed-water pump on a steam-turbine boiler together with an open feed-water heater, you have a substantial waste of steam through the roof exhaust. Here's the way we use this steam to heat water at almost no cost.

We cut the bottom off an old galvanized 30-gal. hot-water tank and inserted in it 100 ft. of coiled ½-in. soft copper tubing. Then we replaced the old bottom by brazing on a 6-in. pipe flange. We then welded a flange on the 6-in. exhaust pipe that comes from the feed-water heater through the boiler-house roof. A 6-in. flanged tee was mounted on the exhaust pipe, and we set the tank on the tee and fastened it with bolts.

We covered the side outlet of the tee with a steel butterfly valve, weighted to allow for a maximum of 4 lbs. back pressure. We get our source of cold water from a cold-water process pump, which discharges at 45 lbs. pressure. We used ¾-in. rigid copper tubing for the feed and ½-in. tubing for the outlet or return piping, which runs back to the filter reservoir. (K-2886) *J. A. Bowling, Cavendish, Vt.*

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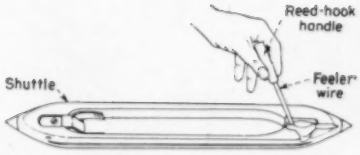
Send in your Kink now.



This Homemade Tool Eases Shuttle-Tensioning Jobs

The small tool shown in the sketch is handy for a loomfixer when he is working on shuttle jobs such as cleaning lint or waste out of the eye or replacing pads.

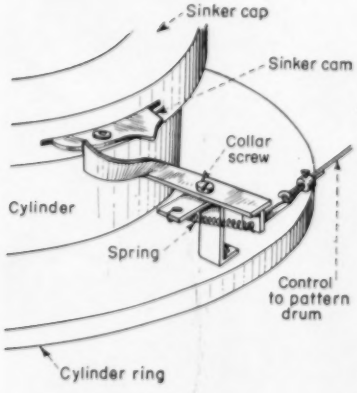
The tool is made from a discarded reed-hook handle and a feeler wire from the center filling stop motion on a Draper or Crompton & Knowles loom.

To make the tool, place the feeler wire in a vise and tap the reed-hook handle on the feeler wire to make a firm joint. File the feeler-wire end until it is nearly sharp, just short of a cutting edge. The tool should be approximately 6 ins. long so that it can be handled easily.

When new pads are placed in the tensioning eye of the shuttle, the tool is used to compress the tiny spring. Then the screw that holds the spring does not have to be screwed out.

The tool is also used to test the pads for cuts made by the constant dragging of the filling yarn. Move the thin blade up and down the pads, and you will feel any cut places.

The tool will remove lint from close places in the eye such as behind the pads or in the springs. Keeping this lint out of the eye removes the cause of much broken filling. (K-2842) *Arthur Abbott, Berwick, Pa.*



Get More Stretch In Terry Socks

We knit ankle socks on heavy-gauge terry-foot machines. To knit a slacker stitch on these machines to produce tops with greater elasticity, we draw the rubber yarn over the terry sinkers. Here's how we do it:

The terry cams are pushed in immediately after the make-up, and the rubber yarn is fed to alternate needle hooks. A movable lever, working on an angle bracket screwed to the cylinder ring, operates the sinker cam to push in the sinkers.

A strong spring, connecting the angle bracket with the swinging lever, moves the lever to press against the sinker cam. A wire, controlled from the pattern drum, pulls the lever away from the sinker cam when normal knitting is resumed. (K-2896)

Winder Modifications Produce Cleaner Cones

The overhead cleaners in our winder room formerly blew lint and trash into the cones that were being wound. This trouble was especially bad when different colors were being processed; the lint flew from one winder to another.

We solved the problem by taking the creels off the winders and installing a baffle on the floor beneath the middle of the winder. The baffle is 6 ins. high and runs lengthwise of the frame.

Now, the cleaner blows down through the frame and cleans the cones, and the baffle prevents the lint from being blown along the floor and into adjacent work.

Removal of the creel also permits better lighting of the winding area. Another advantage is that the winder can be creeled and doffed solidly, as a twister is; and this practice produces a more-uniform package without loss of production. (K-2828) *S. M. Cauble, Jr., Valdese, N. C.*

$5 to $10 for any Kink accepted for publication. Each one will be entered in the $25 and $500 prizewinner contest.

Send in your Kink now.

If Your Scales Break, Use a Quadrant

In the spinning room of our worsted mill, we sometimes have to weigh a small object, such as a bobbin. Often, there is no time to send the object to the laboratory where a precision balance is located. We don't have a balance in the spinning room; so we worked out a method of weighing objects on our metric yarn-number quadrant. Here's how to do it:

Hang the object to be weighed on the quadrant arm where the yarn is normally placed. Divide the reading into 500 (meters of yarn) and you get the weight of the object in grams. For example, if a bobbin hung on the quadrant gives a reading of 16.6, its weight is $500 \div 16.6 = 31$ grams.

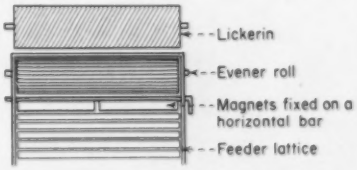
If your quadrant is for the cotton-numbering system, use this formula:

$$\frac{120 \text{ (yds.)} \times 7{,}000 \text{ (grains)}}{\text{quadrant reading} \times 840 \text{ (yds.)}} = \text{weight in grains}$$

The formula can be resolved to this simple calculation:

$$\frac{120 \times 8.33}{\text{quadrant reading}} = \text{weight in grains}$$

(K-2954) *Gustav R. Fried, Brazil*

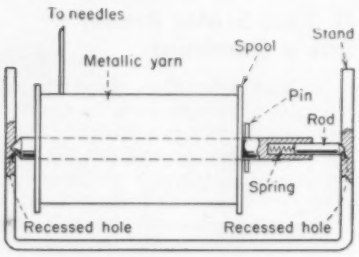


Use Magnets To Protect Waste-Opener Lickerin

The lickerin on the roving-waste opener in our mill used to be damaged often by stray pieces of metal mixed in the waste, no matter how much care we took to keep foreign matter out of our waste.

We solved the problem by installing two half-round magnets, such as are used in bale-breaker hoppers, on a horizontal bar near the evener roll, as illustrated. The bar has a handle on one end that permits the face of the magnets to be reversed for easy cleaning.

Now, we simply pick the stray travelers, washers, nuts, etc. off the magnet at occasional intervals; and we have no more damaged lickerin wire. (K-2931) *I. J. Abraham, India*



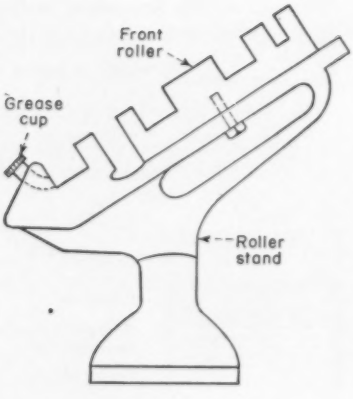
Yarn Stand Solved Metallic-Yarn Problem

Metallic yarn presents a problem when it is knitted on Tompkins machines because the yarn cannot be run satisfactorily from an upright spool. The spool must be free to turn on a horizontal axis to do the best job.

We fixed up a stand to put on the floor under the feed. The frame of the stand is ¼-in. iron with two recesses, made with a ¼-in. drill. The ends of the iron plate are bent to form a U-shape, and a spindle is fitted into the two recesses. The spool of metallic yarn revolves freely when placed on the spindle.

Drill a hole in one end of the spindle large enough to take a spiral spring. Push a rod in the hole over the spring to keep the spindle in position.

A pin forced through the center of the spindle will allow you to rapidly change the spools. Simply push the spool against the pin to relieve the tension on the spring and remove the spool. A full spool can be pushed into position with no delay. (K-2908)



Grease Cup in Roll Stand Reduces Oiling Costs

We spin coarse yarns, and our roll speeds are high. We used to clean frames once every 12 days and lubricate the rolls with a thin grease at the time of cleaning. Roll stands were oiled at regular intervals. Often the oil would dry up between oilings or fail to properly lubricate the roll arbors. Damage would result to rolls and stands.

We fitted small grease cups to each roll stand, as illustrated, so that the front roll is constantly lubricated. The result was elimination of damage to rolls and stands, reduction in the amount of oil used, and reduced labor cost for oiling. (K-2943) *I. J. Abraham, India*

How To Make Ferrules For Screw Drivers

It is sometimes necessary to make a handle for a screw driver, chisel, or other tools. The ferrule often gets lost from such tools, and if it is not replaced there is a possibility of the handle splitting.

Serviceable ferrules can be made from a short piece of pipe or the end of a large electrical fuse or by wrapping the handle with wire or a piece of steel spring, as shown in the sketch. (K-2949) *Chas. S. Bicksler, Lancaster, Pa.*

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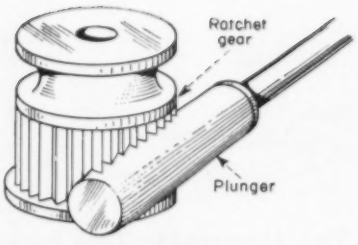
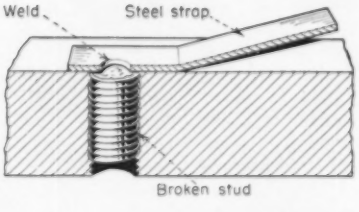


Dress Plunger Teeth To Prevent Uneven Cloth

Occasionally certain forms of tight marks can be caused by the teeth of the ratchet plunger of the C&K let-off. If the teeth are too thick, sticking occurs and the let-off runs ahead. The let-off may move one or two inches ahead without rotating and then suddenly let back with a jerk; this action causes heavy and light marks in the cloth.

The trouble can be remedied by removing the plunger and grinding the teeth with an emery disk mounted on the grinding wheel. (K-2917) *H. E. Wenrich, Berwick, Pa.*

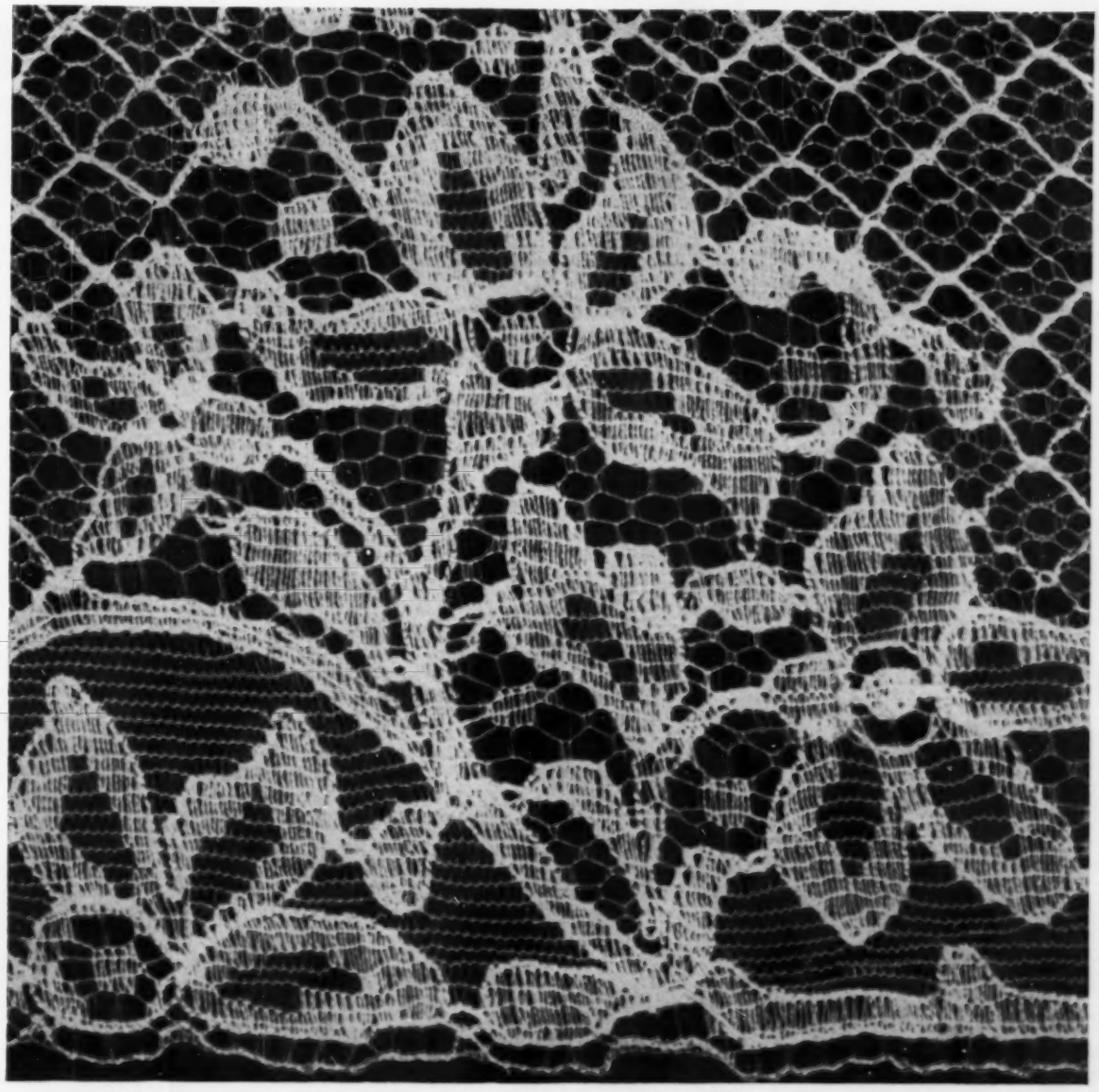


Here's a Sure Way To Remove a Broken Stud

Here's one way to solve the tricky problem of removing a broken stud. The only tools required are welding equipment and a strap made of ⅛-in. flat steel stock about 1½ ins. wide and 8 ins. long.

If the stud is broken off below the surface, build the end up with a ⅛-in. welding rod. Deposit the weld on the stud only. At one end of the steel strap drill a hole half the diameter of the broken stud.

Place the drilled hole in the strap directly over the broken stud, and weld the strap to the stud. After the weld is well cooled, unscrew the broken stud by using the strap as a wrench. (K-2902) *The Stabilizer*



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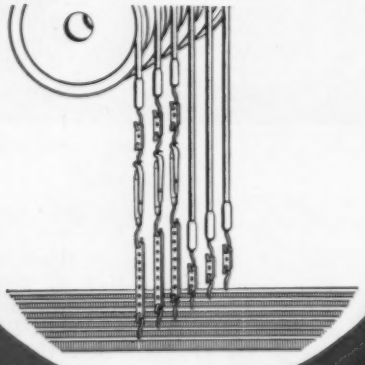

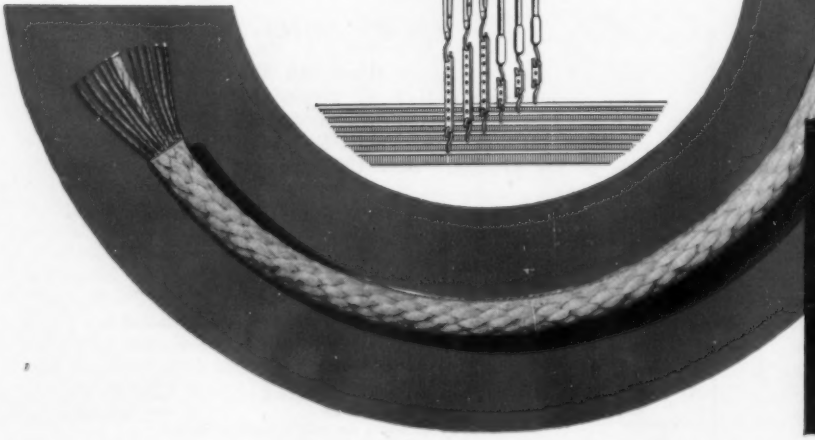

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Examining machine — Adjustable-height, three-speed machine in 40- and 63-in. models. From G. Durrant & Sons Ltd., distributed by R. J. Dealy & Sons. (F-2)

Knitting machine—Equipped with selective indexing pattern drum. Automatically produces mosaic designs. H. E. Crawford Co. (F-3)

Feeder and webber—For nonwoven fabrics, described in Bulletin 104. Curlator Corp., Textile Div. (F-4)

AUXILIARY EQUIPMENT

Collector units—For spinning frames. Material storage capacity 4.1 cu. ft. Uniform dispersion of exhaust air. Pneumafil Corp. (F-5)

Size-mixing system—For preparing size for slashing. Automatic control of viscosity. Bulletin V-1214. Norcross Corp. (F-6)

Hydraulic motors — Dual-vane type in four sizes, deliver up to 23.6 hp. Bulletin DM-321. Kalamazoo Div., New York Air Brake Co. (F-7)

Stop motion—For roving frames. Detects faults, stops frame, signals operator. Easily installed. Adams, Inc. (F-8)

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Instrumentation — For pH determinations, colorimetry, analytical processes. Bulletin 17. Beckman Div., Beckman Instruments, Inc. (F-11)

SUPPLIES & CHEMICALS

Latices—In textile processing. Sizing, dyeing, finishing applications. Bulletin H-20. B. F. Goodrich Chemical Co. (F-12)

Product summary—List of most products produced for textile and other industries. Bulletin F-10017. Union Carbide & Carbon Co. (F-13)

Textile chemicals—Resins, desizing materials, surfactants, others, described in revised booklet T25b. Rohm & Haas Co. (F-14)

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Surfactants—Their uses, possibilities, application set forth in booklet from Foster D. Snell, Inc. (F-18)

Ethanolamines — Complete data on mono-, di-, and triethanolamines; properties, application, in a booklet from Nitrogen Div., Allied Chemical & Dye Corp. (F-19)

MAINTENANCE & ENGINEERING

Truck casters—Rigid, swivel, steel casters; and phenolic, rubber-tired, and semipneumatic-tired wheels listed in catalog from Phoenix Caster Co. (F-20)

Propellor fans—Direct- and belt-driven models, ducts, enclosures listed in Cat. A-109-A from Hartzell Propellor Fan Co. (F-21)

Cellular-glass insulation—With white, compacted face that provides a finished surface for walls. Pittsburgh Corning Corp. (F-22)

Roller bearings—Bulletin A-638 lists many styles of ball and roller bearings, engineering data. Dodge Mfg. Co. (F-23)

Electric controls—Two-hand clutch controls for power-operated machines listed in Cat. 65. Micro Switch Div., Minneapolis-Honeywell Regulator Co. (F-24)

Steel products—Bars, structurals, plates, sheets, strips, listed with specifications in Bulletin 11-2. Joseph T. Ryerson & Son, Inc. (F-25)

Ventilating fans—Belt-driven models for ½ to 10 hp. delivering up to 79,000 cu. ft. per min. Bulletin 7214. American Blower Corp. (F-26)

Air-powered devices—To actuate machines of many types. Motors, valves, special units listed in Bulletin ML-3. J. G. McComb, Bellows Co. (F-27)

Corrosion-resistant valves — Gate, globe, Y, check, jacketed valves in stainless steel and other alloys, listed in Form 146. Wm. Powell Co. (F-28)

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Take a straight-sided belt (Fig. 2) and bend it. Feel the sides at the bend; they bulge out. Now picture this bulge in the sheave groove (Fig. 2-A). It is easy to see that the belt makes uneven contact at points indicated by arrows. Naturally, wear is greater at these points. Uneven wear shortens belt life; increases belt costs.

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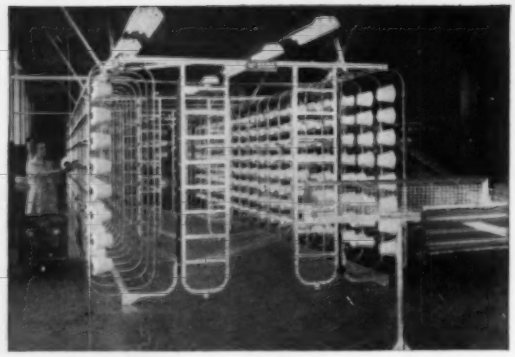

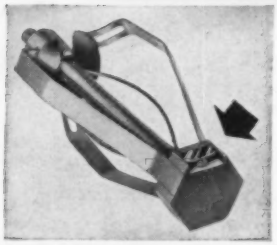

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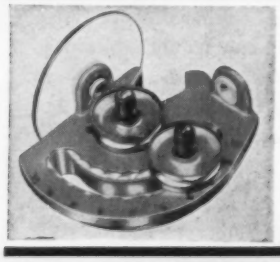

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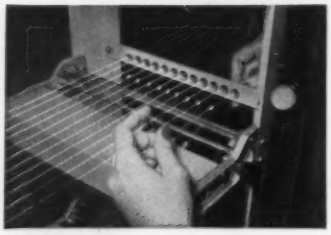

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Industrial rubber products—Hose, V-belts, flat belts, packing, and sheeting listed in a brochure from Thermoid Co. (F-30)

Air cleaners—Electronically actuated filter for industrial air cleaning. Units handle 2,000 to 10,640 cu. ft. per min. Cat. 1425. Westinghouse Electric Corp., Sturtevant Div. (F-31)

Pipe insulation—Made of cellular glass shaped to fit standard pipe and accessories. Pittsburgh Corning Corp. (F-32)

Plate coils—For heat-transfer processes. Areas from 4.2 to 50 sq. ft. in steel or stainless steel. Bulletin 256. Thermo-Panel Div., Dean Products, Inc. (F-33)

Corrosion-resistant coatings—For machines, buildings, tanks, other equipment. Applications in construction and maintenance described in two catalogs from Amercoat Corp. (F-34)

Sprayed-coil dehumidifiers — For industrial air conditioning. Capacities of 2,310-45,900 cu. ft. per min. Bulletin 7827-H. American Blower Corp. (F-35)

GENERAL

Electric fork trucks—4000- and 6,000-lb.-capacity trucks are described in Bulletins 1324-C and 1325-D from Baker-Raulang Co. (F-36)

Fire-protection systems — CO_2 equipment, detectors, applications described in Vol. 12, No. 3, issue of house organ. Walter Kidde & Co. (F-37)

Laboratory directory—Lists 67 laboratories that test and evaluate thousands of industrial products and processes. American Council of Independent Laboratories. (F-38)

Crane electrification—Current conductors for all makes of cranes and runways requiring from 300 to 1,000 amps. Cleveland Crane & Eng. Co. (F-39)

Materials-handling news — Suggestions, case histories concerning conveyors, casters, auxiliary equipment. Rapids-Standard Co., Inc. (F-40)

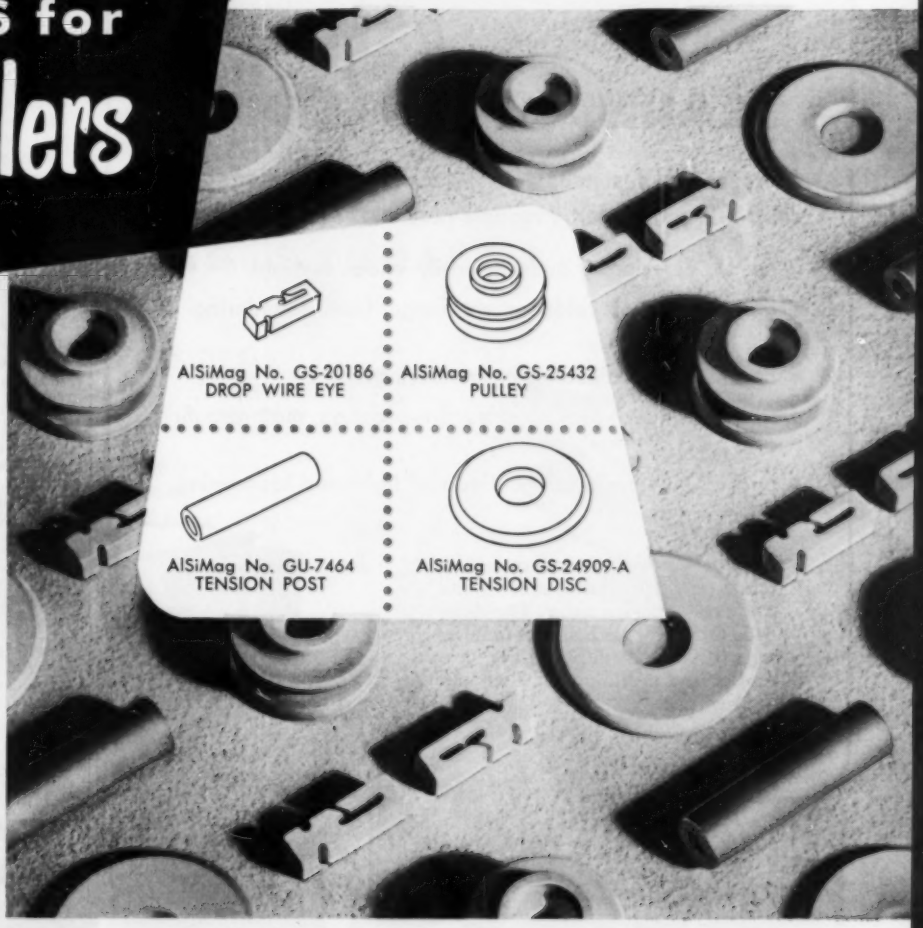
Fluid-flow measurement — Kits for checking rate of flow of liquids or gases in many applications. Bulletin 140. Brooks Rotameter Co. (F-41)

Industrial fork trucks—Electric trucks in fork, tiering, and stacking types; cranes, hand trucks listed in Cir. 80-203. Lewis-Shepard Products, Inc. (F-42)

Magnetic separators—Permanent-magnet types in plates, drums, grates. Homer Mfg. Co. (F-43)

ALSIMAG® GUIDES for Doublers

GIVE YOU: NO POINT OF SUDDEN FAILURE
LONGER LIFE • HIGHER SPEEDS • HIGHER TENSIONS
NO SECONDS DUE TO UNDETECTED GUIDE FAILURE
LOWEST GUIDE COST PER POUND OF YARN PROCESS



These hard, homogeneous AlSiMag guides permit you to run abrasive yarns at high speeds and high tensions. These guides are so hard that wear is very gradual. Since the material is homogeneous it has no surface "skin" to wear through and cause undetected yarn damage.

These AlSiMag guides have been used for many years by mills all over the country. Everywhere that cost figures have been made available to us, these guides have shown far longer life and their cost has been lower per pound of yarn processed.

If your process would be improved by a special guide, we can make it to your specifications.
Test samples of special designs can be made at reasonable cost without tool or die costs.
This enables you to try out your ideas with small investment.

*THESE **AlSiMag** GUIDES FOR DOUBLERS ARE STANDARD ITEMS AVAILABLE FROM STOCK. TEST SAMPLES ON REQUEST.*

Many mills have reported that it would be economically impossible to process synthetic yarns without these AlSiMag guides. Samples for tests will be sent without charge. Try these guides. Keep a record of costs and results. Let your own records tell the story.

55TH YEAR OF CERAMIC LEADERSHIP

AMERICAN LAVA CORPORATION

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for speed and dependable results in research and for quality control in production. Products that must be guaranteed —

- not to, deteriorate or fade easily under sunlight.
- against loss of color or shrinkage from laundering or dry cleaning.
- against colors bleeding in laundering.
- for permanence of fungicides, fire-proofing, moth-proofing and other finishing agents.
- and other deteriorating effects of light and laundering.

More is required of modern fabrics than ever before if they are to stand up in competition today. The Atlas Fade-Ometer and Launder-Ometer will give you dependable test results in a minimum of time and at minimum cost.

Write for information on the new Atlas Scorch Tester for testing damage due to chlorine retention.

ATLAS ELECTRIC DEVICES COMPANY

4114 N. Ravenswood Ave., Chicago 13, Illinois

WEATHER-OMETERS • FADE-OMETERS • LAUNDER-OMETERS

NEW LITERATURE Continued

Gas-powered trucks—Fork trucks that will handle 3,000 to 8,000 lbs. with engines designed for gasoline, diesel fuel, or L-P gas. Automatic transmissions. Yale & Towne Mfg. Co. (F-44)

Payroll computer—Punched-card system computes, collates payroll data. Booklet TM 946. Remington Rand Div., Sperry-Rand Corp. (F-45)

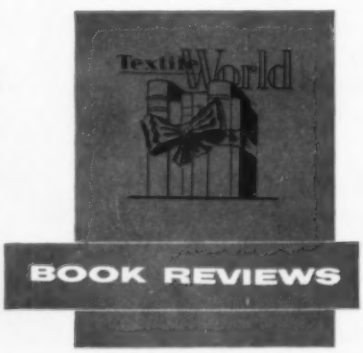
Patent service—Provides patent information in any field. Picturesort Co. (F-46)

Package testing—How to judge general efficiency and protective qualities of corrugated boxes. Hinde & Dauche Co. (F-47)

Record-keeping unit—Portable, compact system for filing up to 6,000 8x5-in. cards for various industrial record purposes. Remington Rand Div., Sperry-Rand Corp. (F-48)

Fire protection—With emphasis on special-hazard conditions. Equipment and methods used in industry. Automatic Sprinkler Corp. of America. (F-49)

Steel price catalog—Complete price data on stainless-steel wire, rods, sheets, forgings, and other forms of this material. Crucible Steel Co. of America (F-50)



STUDY OF THE CONTROL OF PERMEABILITY OF NYLON PARACHUTE CLOTH AT HIGH AND LOW DIFFERENTIAL PRESSURES, Report No. PB 111855 by Cheney Brothers for Wright Air Development Center; Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C.; 52 pages, $1.50.

Methods that will aid the textile manufacturer to control the air permeability of synthetic fabrics are described in this study of nylon parachute cloth. The studies indicated that it is possible for the cloth manufacturer to control the air-pressure

Soft as a glove . . .

BUT HARD AS STEEL

Touch the surface of a Butterworth DURA-SMOOTH Roll. It feels soft as a glove. Now check it for hardness and density. There's the unyielding rigidity of steel. And both qualities are essential for top quality textile finishing.

At Butterworth, each DURA-SMOOTH Roll is built to precise specifications for its own particular job . . . on water mangles . . . embossing calenders . . . chasing calenders. But in every roll, regardless of its material, you get the same Butterworth standard of thoroughness, the same high performance, the same long service life. Call or write today for a quotation on your requirements.

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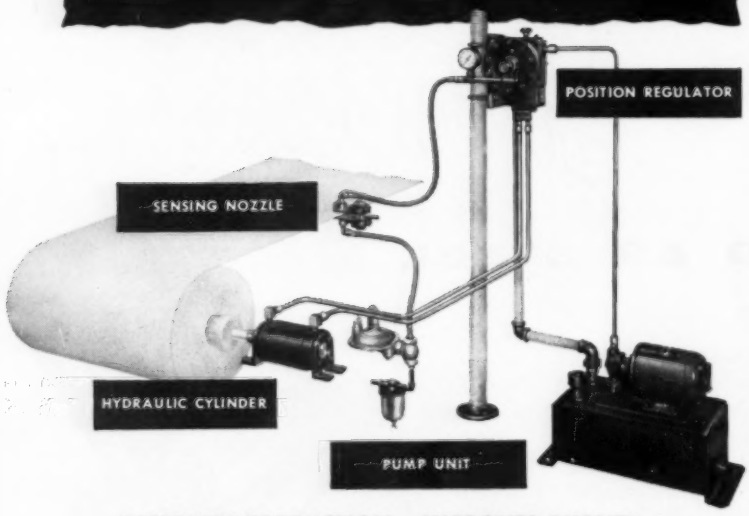
ASKANIA
Cloth Guide Control for LIGHTER DUTY SERVICE



INCREASES PRODUCTION • IMPROVES QUALITY
REDUCES COST • INSTALL IT YOURSELF • MAINTAIN EASILY
OPERATE IN ANY MILL

• Now *automatic* cloth guide control can be used with the small textile machine to get the *same* production increase, cost reduction and improved quality already obtained with larger equipment...and at a lower investment cost!

A VERSATILE PACKAGE

The Model "500" ASKANIA Edge Guide is furnished as a complete package designed and engineered specifically for use on small equipment. It provides accurate edge control on pay-off, windup or steering rolls. It can be applied to *any* size warp on a small machine in *any* mill. Your own mill mechanics can install it! Your own equipment is the only limit to the accuracy you can obtain. *The precision with which examining, slitting and other operations are regulated is a major production factor.* Perfect alignment at high speed is a feature that means greater profit in your mill.

Nothing contacts the moving warp. A *jet of air* actuates the controller. The exclusive ASKANIA cloth guide measures warp errors of less than .005 of an inch, converts the air stream into a hydraulic force that applies the work cylinder to the job.

You'll want further information. Write for Bulletin No. 166, Askania Regulator Company, 274 East Ontario Street, Chicago, Ill.

ASKANIA REGULATOR COMPANY

"CONTROLS FOR INDUSTRY"

HYDRAULIC, ELECTRONIC CONTROLS & SERVOS, GENERAL SYSTEMS, ENGINEERING & COMPUTER SERVICE, VALVE ACTUATORS & CYLINDERS

A Subsidiary of General Precision Equipment Corporation

characteristics of textile fabrics at high and low pressures independently. The report gives details of weaving and finishing processes and charts test results.

TEXTILES & TESTING COURSE OF STUDY; United States Testing Co., 1415 Park Ave., Hoboken, N. J.; 96 pages, $2.75.

The second edition of this book is presented in outline form, well-illustrated with sketches, photographs, and sample test reports. In addition, there are 16 swatches covering the basic weaves. This new edition includes the most up-to-date fiber and yarn information available at the time of printing. The new wool-grade standards and recommended standard textile regains have been included, and the flammability unit has been revised in accordance with the Flammable Fabrics Act.

THE MECHANICAL PROPERTIES OF TEXTILE FIBERS, Deformation and Flow series, Vol. 7, by R. Meredith; Interscience Publishers, Inc., New York, N. Y.; 333 pages, $8.75.

This monograph is concerned with what happens when fibers are stretched or bent in processing and what the effect of time, humidity, temperature, and frequency of load has on the final structure and properties of fibers.

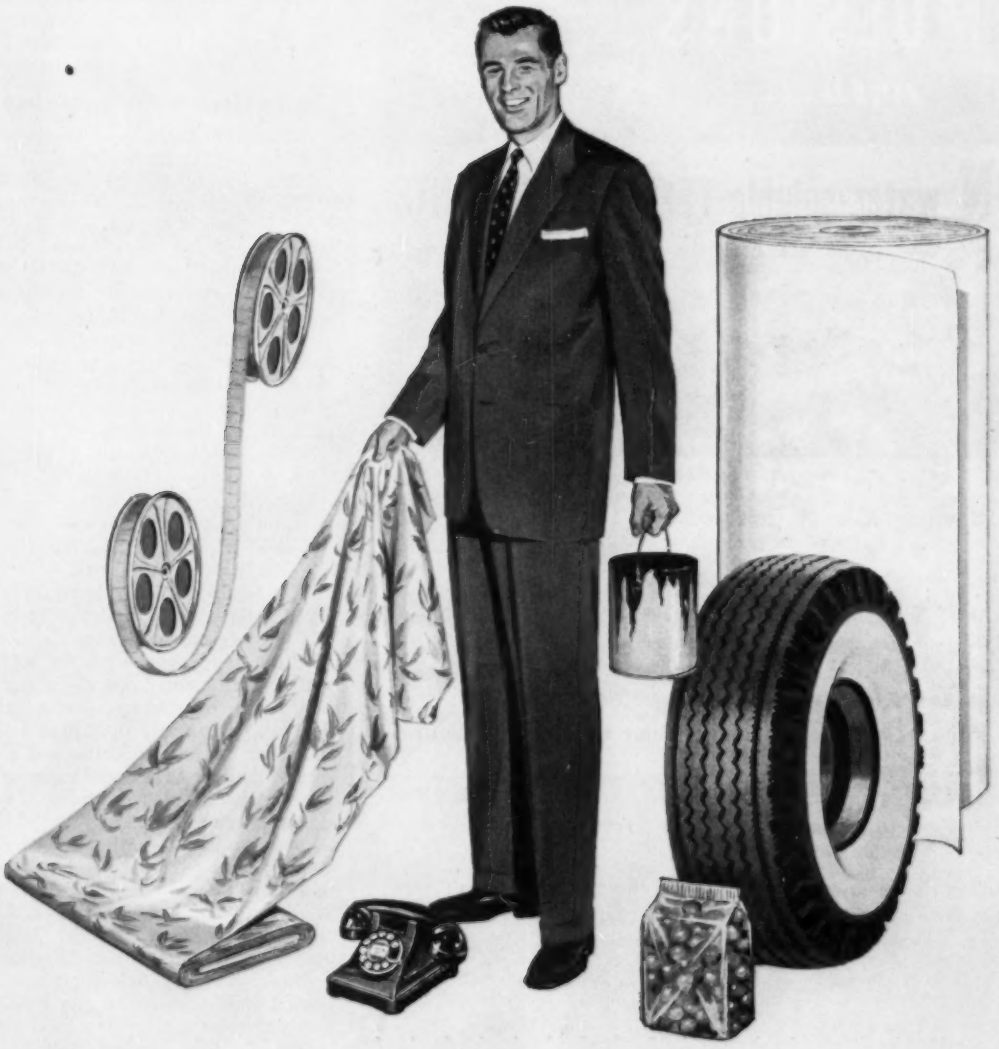
Cellulose, protein, and synthetic fibers are treated from every angle that has to do with physical properties as they are affected by stress, strain, moisture, twist, and temperature. Excellent theoretical formulation in the physics and chemistry of fibers provides a sound basis for the practical mathematical formulas employed to evaluate the effects of physical strain on fibers.

ENCYCLOPEDIA OF SURFACE-ACTIVE AGENTS, by J. P. Sisley and P. J. Wood; Chemical Publishing Co. Inc., 212 Fifth Ave., New York 10, N. Y.; 540 pages, $15.

Over 2,500 commercial brands of surface-active agents are dealt with in this volume. Part I is a general description of the various types of these products, their properties, applications, and methods of manufacture. Part II is a compilation in alphabetical order of all the major products, and their predominating characteristics and uses are listed.

For more information, write direct or use Reader-Service post card.

THIS MAN SERVES MANY MASTERS



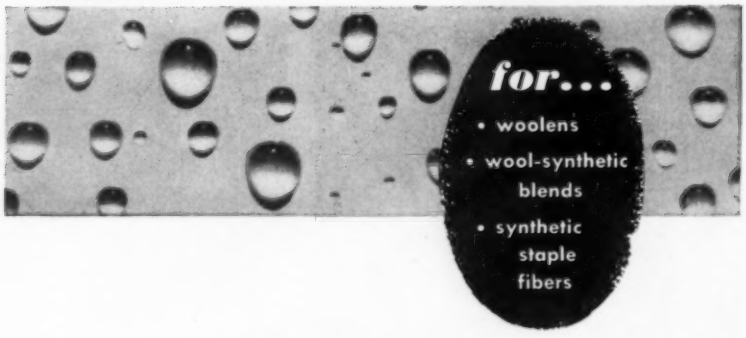
WHO IS HE? He's a Buckeye Customer Service man—paid by Buckeye to help you, our customers, get the most from cellulose. Familiar with every phase of cellulose chemistry, he is equipped to work closely with your technical people . . . is always available to see that there is a Buckeye cellulose that meets your requirements *exactly*.

And Buckeye Customer Service is backed up by Buckeye Research —extensive laboratories . . . specialized testing equipment . . . pilot plants that simulate actual production conditions. Teamwork between customers and Buckeye has resulted—and will continue to result in—new developments, new uses for cellulose!

Buckeye Cellulose Corporation, Memphis 8, Tenn.

BUCKEYE

UCON Trade-Mark water-soluble TEXTILE LUBRICANTS



Just stir these lubricants into water and they're ready to apply. When their work is done, remove them with a water rinse. No emulsifying or coupling agents are needed to solubilize them . . . no costly alkalies or detergents are needed to remove them.

UCON Lubricants are non-petroleum products with *true*, scientific water-solubility.

For 5 years, UCON Lubricants were tested in every phase of wool lubrication. Now, they are used in regular production by woolen mills. Only 1 to 3% is needed to give maximum lubrication.

UCON Lubricants are universally efficient—give even running on all yarn counts. They have built-in "drag," which gives uniform draws even with finest yarns at limit spins. And, they minimize static.

Get the full story on UCON Textile Lubricants. Fill in and return the coupon *today*.

UCON Trade-Mark TEXTILE LUBRICANTS *are products of:*

CARBIDE AND CARBON CHEMICALS COMPANY
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WELLMAN'S COMBING PLANT

CONTINUED FROM PAGE 101

on this check is 0.3%.

A Holdsworth gill reducer at the delivery end of each backwasher delivers the sliver into large square cans for the French-combing section. A small quantity of oil is added at this stage.

Combs Have Individual Drives

Sliver from the gill boxes opposite the Noble-combing section is led directly to the baller to produce laps for the 22 Noble combs. Noble combs have all been equipped with individual drives.

There are 45 new Sant'Andrea and S.A.G. French combs laid out in three rows. All have individual-end stop motions, and 20 ends of sliver are used to produce sliver 3 to 3½ oz. per 5 yds. The French combs are generally used for short fine wools and run at 105 nips per minute.

Raper Autolevellers are an integral part of the nine Holdsworth gill reducers that are arranged in line behind the combers. The Autoleveller device automatically adjusts itself to deliver a constant weight of sliver.

The machine stops automatically if the incoming sliver variation exceeds 15% from standard. Should several of the 44 ends, which are fed to the Autoleveller, come down, the machine will deliver the correct sliver weight. The fallers are set to operate at 1,100 drops per minute under normal conditions, but the faller speed varies with the weight of the incoming sliver. Each machine produces up to 300 lbs. of sliver per hour.

This sliver is fed to finishers immediately behind the reducers. Five Holdsworth gill reducers take care of the leveled sliver from the Noble-combing section; and four Warner & Swasey pin drafters, which are used as second finishers, are on the French-combing side.

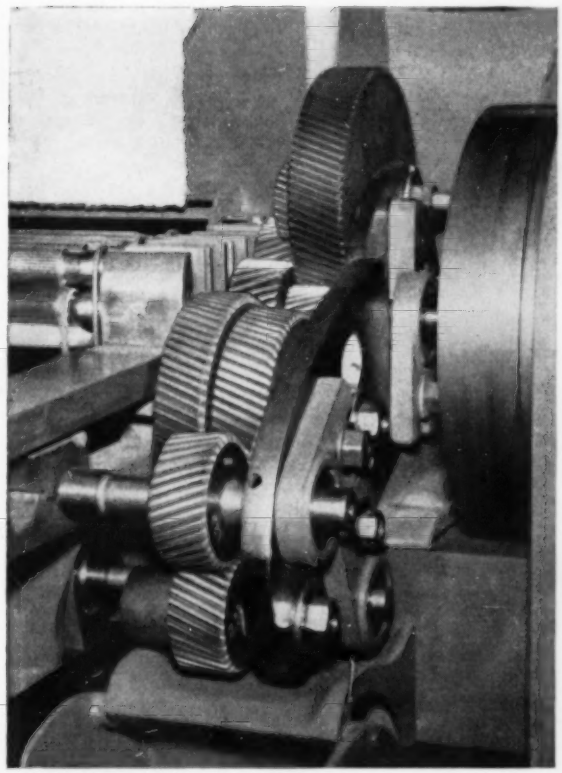
The finishers produce balled top weighing 2¾ oz. per 5 yds. from three ends of leveled sliver. The Noble-combing section delivers 15-lb. balls while the French-combing section delivers 16-lb. balls.

Each unit of gill reducer and finisher is attended by one girl, and the finished top is immediately packed in shipping cases. The cases are placed on a truck behind the finisher, and 32 balls are loaded in each case.

Finished Top Kept Conditioned

When full, the truck is pushed to a hydraulic loading ramp to raise the case to a weight scale. A Whitin press compresses the package and straps it for delivery to all parts of the country. Finished stock is stored in a condi-

Put strength, long life, silence into gears, couplings, loom parts with C-D-F Celoron® plastic



CELORON-TO-CELORON GEARS in drawing rolls made by Ideal Industries, Inc., Bessemer City, N. C. These are helical-cut gears—the toughest to machine, requiring the toughest material. Celoron is it. Other Celoron parts for this application are shown below, top right.

WORK MIRACLES IN TEXTILE MACHINERY—with this amazing golden plastic material! Celoron gears help eliminate noise, reduce wear on mating metal gears; and even the roughest-used helicals last . . . and last . . . and last.

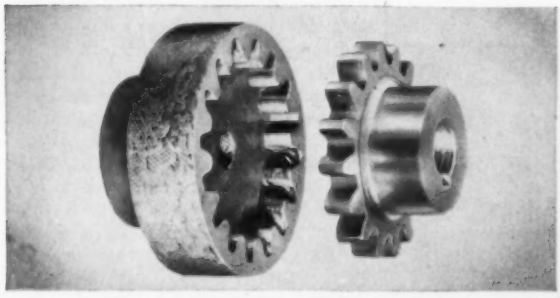
HIGH MECHANICAL STRENGTH. Typical Celoron strengths: tensile, 6,500 psi; flexural, 10,000 psi; compressive, 25,000 psi; shear, 8,500 psi. Dimensionally stable and readily machined, Celoron fills the bill where costly metal parts fail.

ELECTRICAL INSULATION VALUE. Celoron is a non-conductor with high electrical insulation value. It makes ideal mechanical-electrical parts. Celoron couplings effectively insulate motors from driven machinery.

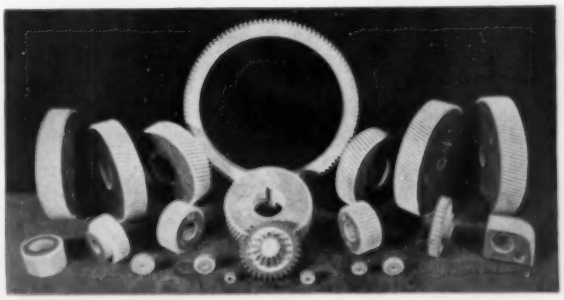
BETTER SERVICE FOR THE SOUTH. Besides having sales engineers in all principal cities, C-D-F maintains a specialized plant-warehouse stocking Celoron parts and Diamond Fibre receptacles for the Southern textile industries at 834 Hayne St., Spartanburg, S. C. Your Celoron gear blank, coupling, or loom part will reach you fast from this wide-awake distribution center.

Keep in close touch with *your* C-D-F sales engineer—a good man to know!

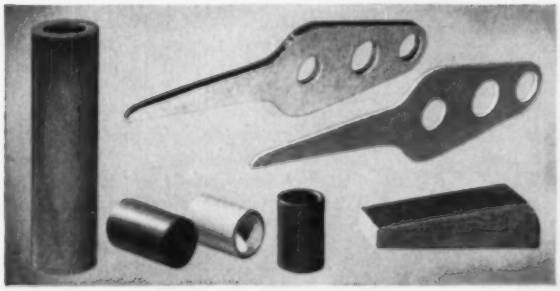
CONTINENTAL DIAMOND FIBRE
CONTINENTAL-DIAMOND FIBRE DIVISION OF THE BUDD COMPANY, INC.
NEWARK 55, DELAWARE



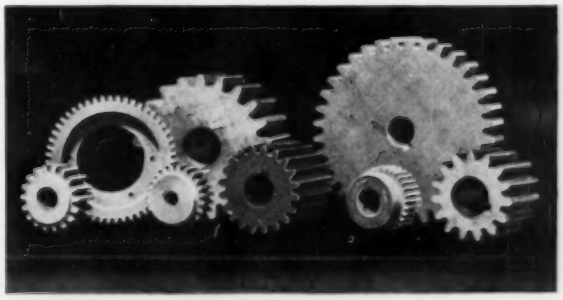
LOW-COST, EASILY-ASSEMBLED C-D-F Celoron flexible coupling transmits power smoothly, efficiently, silently . . . needs no lubrication, works on vertical or horizontal shafts.



PRECISELY MACHINED KEYWAYS help keep these Celoron parts silent and strong in the Ideal drawing rolls illustrated in top photograph. Note wide range of sizes and shapes.

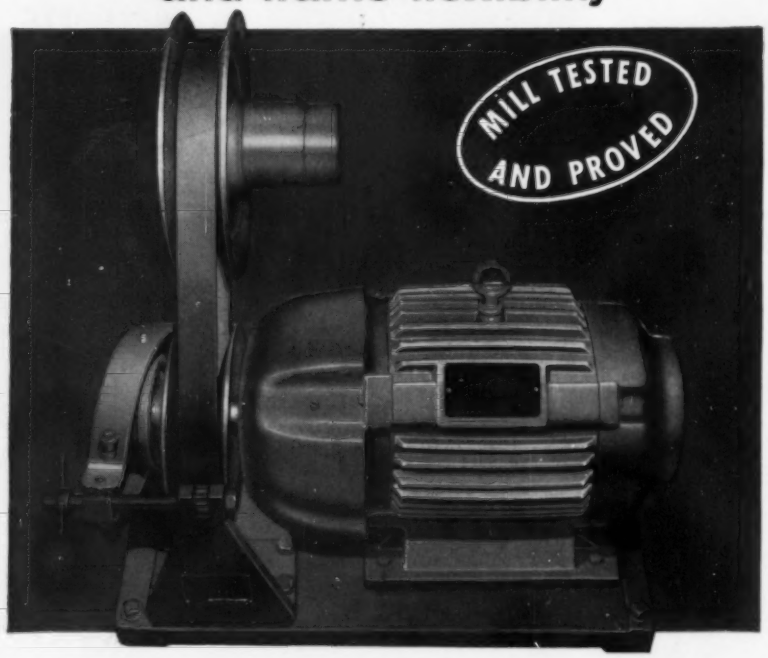


YEARS OF SERVICE, freedom from maintenance, resistance to moisture—that's what these C-D-F parallel plugs, knife guides, binder bushings give the mill operator.



STRONG, SILENT CELORON makes both drive and driven gears. Metal gears don't develop excess play, last longer when they mate with Celoron. Many applications are 100% Celoron-geared.

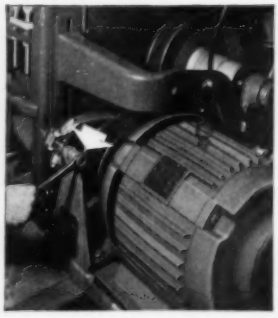
Increase spinning efficiency and frame flexibility



REEVES Vari-Spin Drive

Fast, easy adjustment!

For *exact* cylinder speed regulation—from 500 to 1450 rpm—simply turn shifting screw with wrench . . . *with frame in operation!* Get the required speed—in seconds!



Top production

Optimum spinning efficiency demands the highest front roll rpm that will maintain acceptable yarn quality (ends down) and constant work loads (sides per spinner.) REEVES Vari-Spin permits speed adjustments —while the frame is running—to compensate for variations in humidity and roving quality.

Durable, flexible performance

Maximum frame utility requires drive flexibility for today's yarn count and fiber blend changes, as well as future traveler and ring improvements. With almost 3 to 1 speed range, the rugged and reliable REEVES Vari-Spin permanently reduces wasted fixer hours and frame down time.

Get the story on "Mill Proved" Vari-Spin from your REEVES representative, or write for folder W22-G561

REEVES DIVISION • COLUMBUS, INDIANA

RELIANCE ELECTRIC AND ENGINEERING CO.

For more information, write direct or use Reader-Service post card.

tioned warehouse to maintain the same conditions the wool was processed in.

All departments, except the air-cooled scouring room, are air conditioned. A competitive incentive system keeps efficiency high throughout the plant. Efficiency counters on all machines are read each shift by the engineering department, and the readings are entered on a notice board in each department.

The present floor space of the new Wellman plant covers about 190,000 sq. ft. and Daniel Construction Co. has started to build more warehouse space.

DYE DIRECT COLORS

CONTINUED FROM PAGE 103

a two-unit compartment washer. The aftertreating bath is kept at 160° F. and is followed by two warm flooding rinses and a cold rinse in compartment washers fitted with nip rolls between boxes. A vacuum extractor removes excess water as the goods travel on to dry cans or flue dryers. The style being processed dictates the drying method.

The third system mentioned is preferred by another mill. In this method the cloth is dried in a flue dryer immediately after padding in color and passes directly into a compartment washer containing a 5% solution of boiling salt. After a nip the goods go into the next washer for a cold flooding rinse and are squeezed out into a washer carrying a ½% solution of Gycofix 67 at 160° F. A vacuum extractor precedes the drying operation that completes the run.

This method has been used to produce dark shades that pass a #3 AATCC Washfastness Test. Rayon-nylon blends in an 80 to 20 ratio can be successfully dyed by this method. Irgalan dyes work well for the nylon components.

Pitfalls To Avoid

Always assuming that preparation has been very thorough, there are a few points that must be watched if level dyeing, good washfastness, and shade uniformity are to be expected.

First among these is dye selection. Dyes must be chosen that have adequate solubility, and there is no point in trying to produce combination shades in which any dye component has to be used at or above the limits of its solubility at padding temperature.

Then color combinations should be made up of dyes that work well to-

EASY, FAST CURE FOR "COASTING" FRAMES!

Your roving or spinning frame motor acts as its own brake when used with this

NEW Qwik-Stop CONTROL

"Coasting" frames waste time, material and money. But it's often difficult and expensive to add conventional brakes to existing frames.

This new **Qwik-Stop** electric braking control is the answer. It requires no frame modification. Simply replace your motor starter with this unit and *presto*—you have brakes. A wide variety of braking torque is available by a simple jumper reconnection. Dependable timing of braking cycle with easily adjusted pneumatic timer.

***Write** for Bulletin 8922 which gives the complete story. Address Square D Company, 4041 N. Richards Street, Milwaukee 12, Wisconsin.*

This **Qwik-Stop** unit provides complete control for starting, protecting and braking roving or spinning frames.

SQUARE D COMPANY

Yes every DART is VACUUM-TESTED

(to give YOU a drop-tight seal)

This True Ball Joint Makes the Difference

Make it right . . . Test it after you make it . . . That is our rigidly adhered to policy at Dart. When you buy unions it's a good thing to remember because (1) You'll get a drop-tight union; (2) a union that can be used over and over again; (3) a union that's easy to install; (4) savings thru longer service.

QUICK FACTS

- Leakproof because precision-machined to a true ball joint and spherically ground
- Extra wide seats of bronze alloy resist pitting and corrosion
- Heavy shoulders that can take severe wrenching without damage
- Nut and body practically indestructible (of air refined, high test malleable iron)
- Individual vacuum testing of each Dart to assure absolute tightness when it leaves the factory

DART UNIONS *Products of* **DART UNION COMPANY PROVIDENCE 5, R.I.**

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THE **Fairbanks** COMPANY
393 LAFAYETTE STREET, NEW YORK 3, NEW YORK
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gether. Laboratory trials are necessary for this sort of estimate and should be made with the combination, because dyes sometimes behave differently in combination than they do individually.

These Dyestuffs Work

A partial list of dyes that work for these processes includes:

Reds:
- Diphenyl Fast Light Red 6BF
- Solophenyl Bordeaux 2BL
- Amanil Fast Red 8BLN
- Calcomine Fast Red 8B
- Chlorantine Fast Red 7BLN

Yellows:
- Solophenyl Yellow 2GL
- Solophenyl Yellow AUF
- Cuprofix Yellow GL
- Chlorantine Fast Yellow 2GLL

Blues:
- Solophenyl Blue 7GL
- Solophenyl Blue 3GL
- Amanil Supra Blue LLG
- Pontamine Fast Blue 6GL

Violets:
- Solophenyl Violet 2RL
- Solophenyl Violet 4BL
- Chlorantine Fast Violet 5BL
- Solantine Violet 5BL

Browns:
- Solophenyl Brown GL
- Diphenyl Fast Brown BRL 200%

Green:
- Solophenyl Dark Green GBL

Gray:
- Cuprophenyl Grey GRL

Fixatives of the copper-resin type vary considerably in effect on shade and colorfastness and in effect on resin-finishing baths. A fixative that is successful as a part of the dyeing operation may cause trouble in the resin-finishing bath or affect the hand of the fabric considerably. So it is important to select a fixative that will work best in the particular setup used at any one mill. Safest bet is laboratory trials of the several products now available. Aftertreating compounds that work well include Gycofix 67, Cuprofix, Sandofix WE, Lyofix, and Polyanthrene.

Control Each Step

Process control is vital because in continuous-dyeing processes a very limited time is employed to accomplish an effect that generally takes several hours with the type of dye and fiber involved. Speed, temperature, and concentration of dyes; salt; fixatives, and detergents must be held closely to predetermined points in order to produce satisfactory work.

Continuous processing of any kind spells increased production, less cost, and more-uniform results. When it is applied to dyeing direct colors on suitable fabrics and within shade limita-

North-East, South or West,

Naugatuck is there to serve you

With latex compounds, of course! For Naugatuck—world's leading compounder of rubber and/or plastic latices, known as LOTOLS®—now operates *three* modern compounding plants.

Strategically located at Naugatuck, Connecticut; Gastonia, North Carolina; and Los Angeles, California; they provide fast, economical delivery to all parts of the country. These plants are equipped with modern, high-speed measuring devices permitting *fast* and *accurate* formulation of latex compounds to meet the exact needs and equipment of the user.

Whatever your need for these LOTOLS...whatever your location...there's more reason now than ever to make Naugatuck your regular supplier.

Naugatuck LOTOLS are used for

Upholstery Fabrics	Bag & Wrapping Papers
Textile Sizing	Masking Tape
Carpet Backing	Adhesives
Non-woven Fabrics	Gloves
Upholstery Pads	Balloons & Beach Balls
Combined Fabrics	Girdles & Baby Pants
Tire Cord	Meteorological Balloons
Hose & Belting	Rug Underlay, etc.

United States Rubber

Naugatuck Chemical Division

Naugatuck, Connecticut

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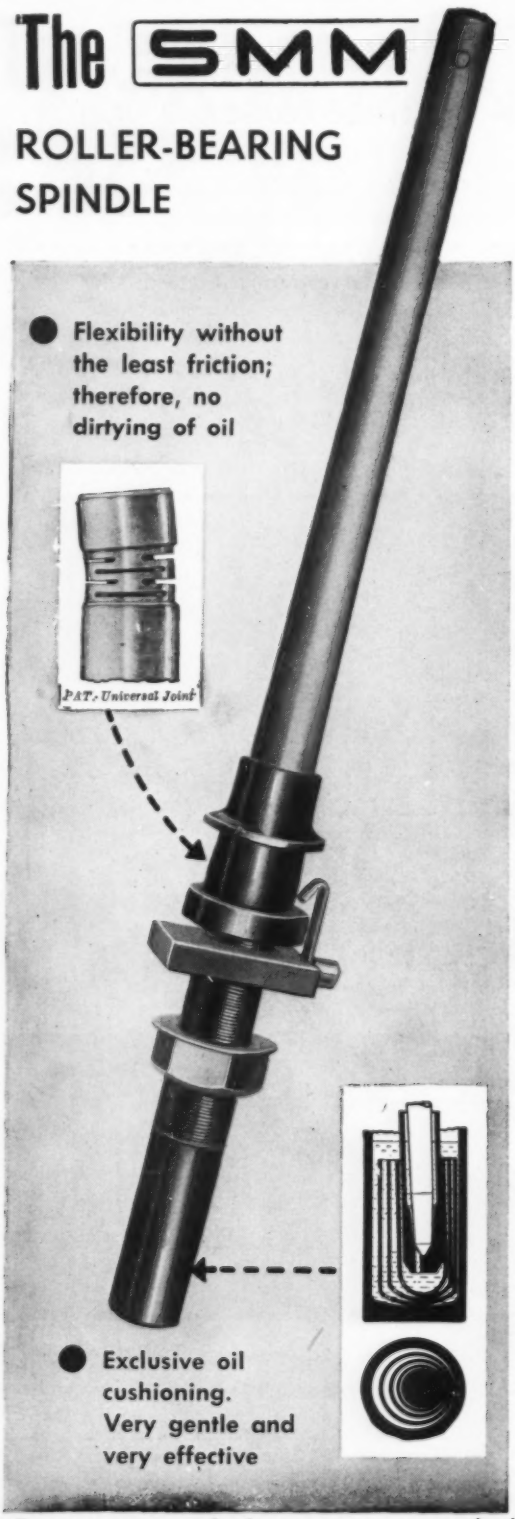
The SMM ROLLER-BEARING SPINDLE



● Flexibility without the least friction; therefore, no dirtying of oil

● Exclusive oil cushioning. Very gentle and very effective

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and Greater
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20,000 Hours and more with same oilfilling.

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No edge pressure on the rollers. No chafing corrosion.

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Amazingly smooth running results in less thread breakages, in a more uniform quality of thread . . . permits higher speeds and increased traverse.

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Minimum power consumption.

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Built for any kind of bobbin. For twisting, spinning and throwing. For light and heavy duty.

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step up your output-per-manhour and give you highest return on your spindle investment.

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tions, all three of these points can be realized. Then the faults common to batch processing, such as streaks, chafe marks, over-dyed ends, and losses due to tangles, are largely eliminated. Steam consumption is lower, and there is no loss of time in loading and unloading becks or jigs.

There may be an extra drying operation, but the advantages outweigh this disadvantage.

BACK-BREAKING WORK

CONTINUED FROM PAGE 107

can refer to the warehouse storage file, find the bale, and deliver it to the gray room in a couple of minutes if necessary."

To get that filing-system effect, each aisle and each bin has a letter or number; and as the lines are filled, tally sheets carrying bale and roll number, customer identification, and exact location are made out by the trucker. These records go to the warehouseman for future reference. When it is possible, lots are stacked together; but when this isn't practical, it's easy to locate an odd bale or two in the warehouse.

What had been an old horse barn presented another challenge for the materials-handling engineer, Irving Z. Humphreys. "We had an old building, not rectangular in shape and with a lot of awkwardly spaced supporting columns. We worked out an angle-iron-support system that ties in with the rows of columns and is rugged enough to carry six tiers of cartons of finished goods. Every carton is accessible, and no pallets are required. Then, to finish off the job, we built in a loading dock so that trailers are housed during loading."

In this operation a small Towmotor truck with conventional chisel forks is used to pick up and deliver cartons of cloth. The truck will lift loads 156 ins. Here again, stacking made possible by power conserves floor space.

Power Helps Intra-Plant Trucking

After the goods are bleached, moving them about to various other processing departments has been expensive and time-consuming. Now USF-Aspinook uses Automatic electric tractors to haul boxes of goods from one department to another. Boxes are equipped with couplings, and eight or nine at a time are easily handled by one operation and the electric tractor.

Toting heavy chemicals from stor-

CHEMICALS FOR COTTON FROM SOLVAY

CAUSTIC SODA

DESIZING—Removing sizing and external dirt by saturation, steeping, and washing.

PURIFYING—Extraction by either continuous or batch methods of natural impurities found in cotton fiber such as motes, pectins, waxes, and inorganic salts.

MERCERIZING—Improving luster stability, absorbency, and dyeability by saturating with caustic, holding under tension, and washing.

PLISSÉ—Puckering certain areas of woven fabrics by printing with caustic paste to produce seersucker or comparable effect.

SODIUM HYPOCHLORITE BLEACHING—Manufacture of chemical bleach solutions.

HYDROGEN PEROXIDE BLEACHING—Minimizing scale formation and adjusting alkalinity.

SOAPING—Mild alkali scour after dyeing or printing. Mild scour of woven fabrics for removal of impurities acquired during finishing operations.

WATER SOFTENING—Precipitating hardness salts.

HYDROGEN PEROXIDE

BLEACHING—Converting color bodies found in natural cotton fiber to colorless form; brightening yarn-dyed woven fabrics.

SODIUM NITRITE

CORROSION INHIBITOR—Reducing corrosion of iron and steel equipment.

SODA ASH

SOAPING—Mild alkali scour after dyeing or printing. Mild scour of woven fabrics for removal of impurities acquired during finishing operations.

SODIUM HYPOCHLORITE BLEACHING—Manufacture of chemical bleach solutions.

WATER SOFTENING—Precipitating hardness salts.

CHLORINE

SODIUM HYPOCHLORITE BLEACHING—Manufacture of chemical bleach solutions.

WATER PURIFICATION—Sterilizing.

WASTE EFFLUENT TREATMENT—Reducing B.O.D. and objectionable odors.

AMMONIUM CHLORIDE

NEUTRALIZING—Reducing caustic alkalinity yarn or fabrics by converting NaOH to NH_3 and NaCl.

ORTHODICHLOROBENZENE

ODOR CONTROL—Reducing objectionable odors of bleachery waste effluents.

SOLVAY PRODUCTS FOR COTTON DYEING & PRINTING

Caustic Soda—Soda Ash—Sodium Bicarbonate—Sodium Nitrite—Potassium Carbonate—Sodium Chloride—Ammonium Chloride—Caustic Potash.

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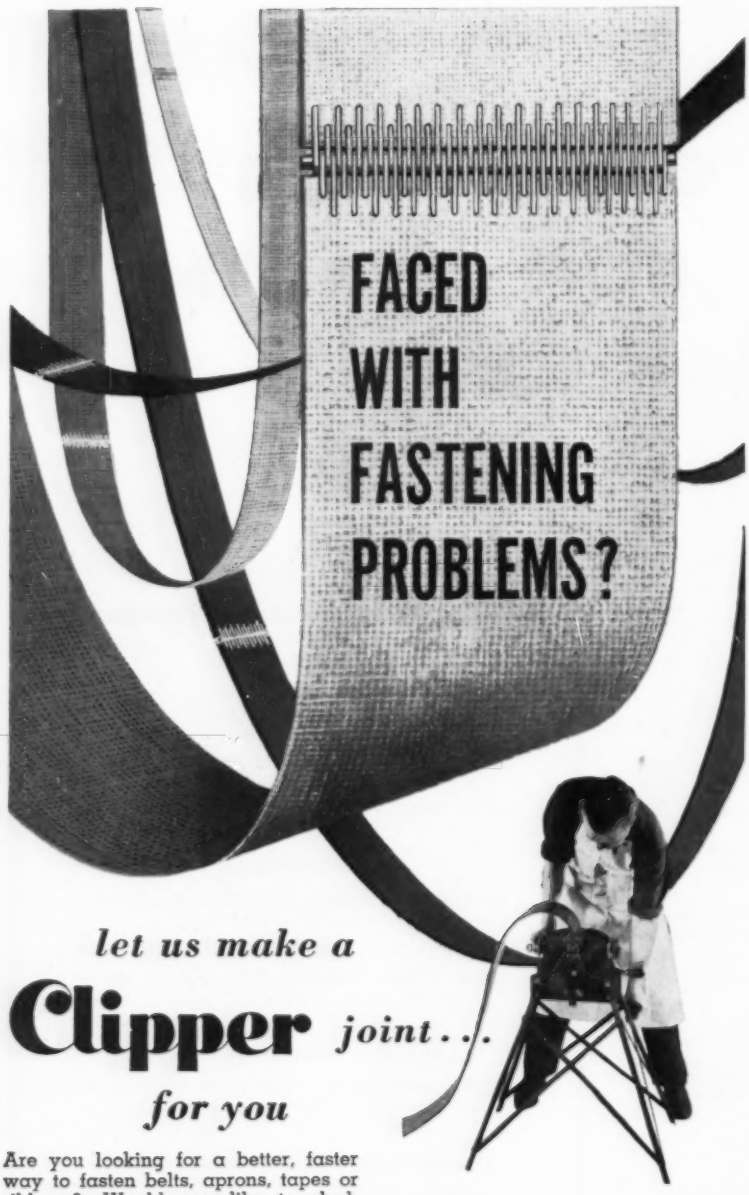

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Let us demonstrate the advantages of a Clipper joint on the product of your choice. Send us a small sample (or the complete belt, apron, tape, or what have you) and we'll make you a Clipper joint FREE, without obligation. Write, wire or call today for details and literature.

Ask your Industrial Distributor for Clipper Products

Clipper BELT LACER COMPANY

980 Front Ave., N. W., Grand Rapids 2, Michigan

age to point of use used to occupy several men at this plant. Now chemicals are palletized; and where possible, large quantities are stored near the point of use. A Clark fork-lift truck that can negotiate outside roadways is used for this job.

One pallet at a time is delivered to color shop, finishing department, or dyehouse mixing areas as required. One delivery per shift is generally adequate, but further needs can be met quickly. Ramps are used to connect storage areas with departments on other levels, eliminating the stop-and-go process necessary with elevators.

In addition to increased efficiency and lower costs, working-force morale is higher. Mr. Filz says, "Our men are very happy with this setup. They wouldn't want to go back to hauling bales and rolls by hand. It was back-breaking work that cost too much any way you looked at it."

HIGH-SPEED DRAWING

CONTINUED FROM PAGE 109

More-frequent doffing will be required, coiler heads may need more attention, and power costs will be increased.

Operational Costs. Work assignments will have to be adjusted because of the increased frequency of doffing. If more breaks occur before and after drafting, further adjustment of work assignments will be necessary.

Cleaning can be expected to increase in proportion to the amount of stock processed. There probably will be an increase in the amount of fly produced. The maintenance schedule may have to be extended.

Quality of Sliver. The elimination of multiple processes after drawing has reduced doublings, which means that small variations in drawing sliver will be amplified into long-term variations in yarn.

There are a number of drafting systems with a wide variety of roll combinations and roll characteristics to choose from. Which of these systems will produce the best quality yarn in your mill? Draft distribution should be carefully studied.

Roll weightings, if too great, damage fiber and increase power consumption; if weighting is too light, drafting is ineffective.

Subsequent Processing. Questions that might be asked about the effect of high speeds on subsequent operations are: Can speeds be increased for both drawing processes, or is one

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PROMPT DELIVERY

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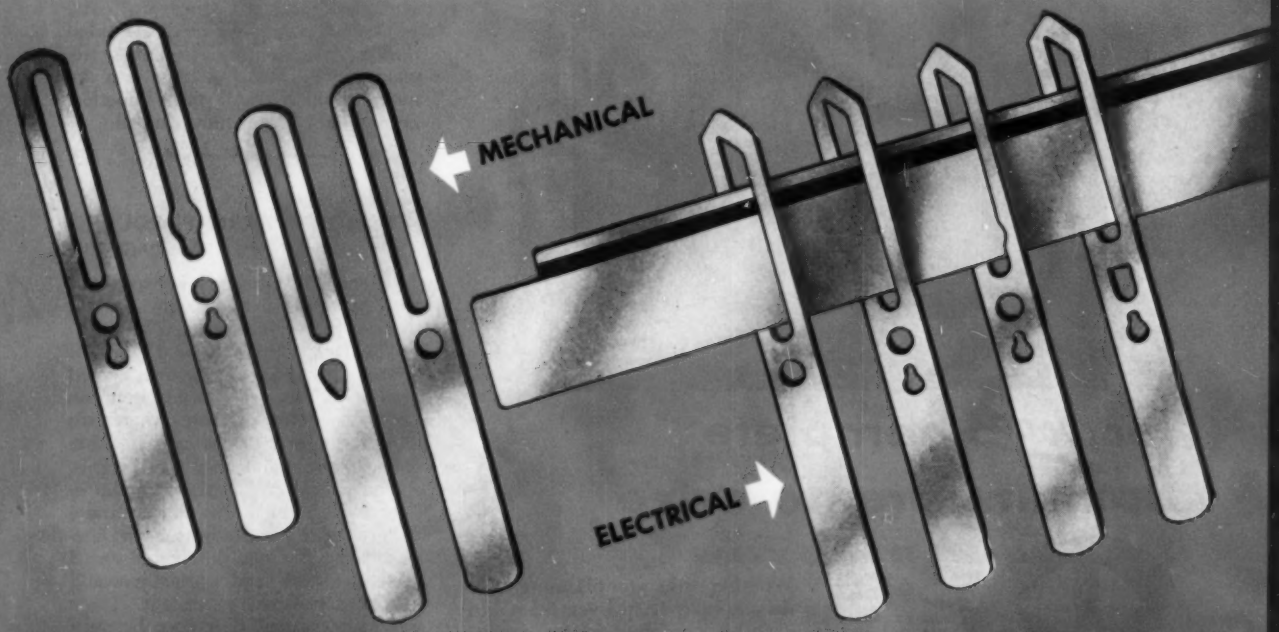

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With STEHEDCO Electrical and Mechanical Drop Wires, the *"Watchmen for the Weaver"*. . .

Large stocks on hand guarantee prompt delivery of STEHEDCO Supreme Quality Drop Wires in all weights for all sizes of Warp Yarn, supplied in galvanized, copper, nickel finish and stainless steel.

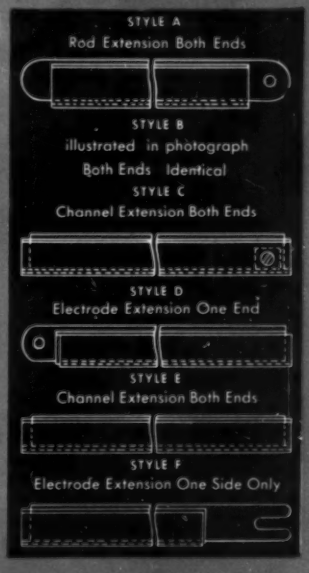
STEHEDCO facilities are more than adequately prepared to serve those mills requiring such services as refinishing *Old Drops* or repunching them for use with Drawing-in machines.

STEHEDCO Electrode Rods are made of Stainless Steel with Fibre Insulation and may be had with special plastic insulation of high dielectric strength, for use with electronic or other sensitive relays.

Ordering is simple:—

When ordering Drop Wire, Mechanical or Electrical, furnish sample or use the diagram illustrated. (to left) Designate style, Width, Thickness, and Finish desired.

When ordering Electrode Rods specify style and length. (see diagram to right).



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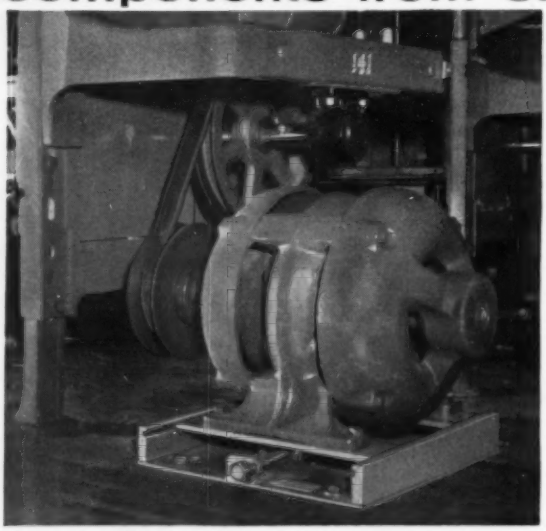
all components from stock



for Wood's complete spinning frame drive

Accurately machined and balanced companion sheave is equipped with demountable "Sure-Grip" Bushing.

Rigid "squeeze resistant" cross ribs prevent belt from collapsing. Notched underside gives flexibility-maximum range of speed control. Arched cord section maintains uniform tension.

Quick-slide motor base features provision for releasing the adjusting screw, permitting the motor to be moved quickly and freely.

Whether you are planning new drives or change over from old existing spinning frame drives, Wood's has just the right HP, and speed range ratio you need. Select from 1 to 5HP and 2 to 1 speed range or 5 to 20HP with 3 to 1 speed range. In addition, all component parts, such as the companion sheave, notched belt and quick slide motor base, can now be readily obtained from our stock. No cause to concern yourself with delays in production hold-up and delivery time from source of supply.

Just phone or write your nearest Wood's Distributor, tell him what you need and want in a variable speed drive and leave the rest to him. For a more informative story on our line of variable speed drives for the Spin-Weave Industry, write for bulletin #497, today.

T. B. WOOD'S SONS CO. CHAMBERSBURG, PA.

CAMBRIDGE, MASS. • NEWARK, N. J. • DALLAS, TEXAS • CLEVELAND, O.

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process adequate to produce good-quality yarn? Does sliver made at high speeds tend to break back more? What will be the effect on quality and ends down in roving?

Final judgment must be concerned with the spinning process and yarn quality. Long-term factors, including variation of skein weight and strength, single-end strength, evenness, and break factors, should be investigated thoroughly. Average factors may remain equal, but variations can be more significant. All yarn imperfections should be carefully studied.

STRONGEST YARN PRODUCED

CONTINUED FROM PAGE 110

flect enough difference between the three harvestings to account for differences in yarn strengths.

The late samples from 11 out of the 12 states were slightly finer-fibered than either the early or midseason cottons. Seven of the early-season periods showed slightly coarser fiber than either the midseason or later-season periods.

The fiber from the early samples in 8 of the 12 states was slightly more mature than the midseason or late-season fibers. These differences varied from 1 to 3% and normally would not be considered significant. There was no consistent difference between the other harvestings.

Fiber-strength results using zero gauge between clamps did not show enough differences between the early and late samples in all but three states to lead one to expect lower strengths from the late cottons. These states were North Carolina, South Carolina, and California.

The strengths obtained from the Pressley tests using a ⅛-in. spacing between the clamps did not show enough differences between the early and late-season cottons to account for the difference in yarn strengths in all but two states. Generally speaking, most of the differences shown were too small to consider highly significant for a particular state in selecting cottons for a mix.

SLASHER ROOM

CONTINUED FROM PAGE 111

5. The big pay-off from the new creels is realized in the weave room in the form of better-running warps, increased production, and better-quality fabrics.

There Are Five Slashers

The new creels at Joanna supple-

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OK BRAND

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FAST, EXPERT COUNSEL ON YOUR PROBLEMS

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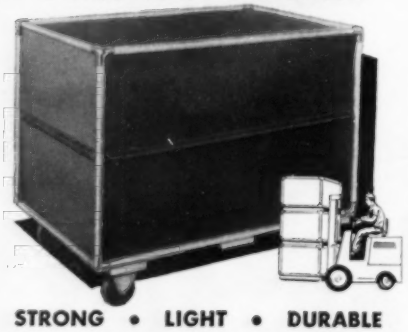
Engineered and designed for the Textile Industry

Lewis
FIBER GLASS
Reinforced Plastic
PANEL BOXES



These sturdy panels of Fiber Glass cannot

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- WARP
- SHATTER
- SNAG

and have stay-fast, permanent, molded-in colors

STRONG • LIGHT • DURABLE

Smooth panels of Fiber Glass have no rivets or exposed seams . . . assure snag-proof handling. So easy to keep clean! Impervious to water and most chemicals. Standard sizes available, equipped with skids for multiple handling or with any style caster specified. Special sizes offered to fit your particular needs. Write for further information.

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ment other up-to-date equipment in the slasher room. The five slashers in the room are Uxbridge Hot-Air units. The slasher speed is about 50 yds. per min. on 60s yarn, with a moisture retention of 7½%.

The slashers are equipped with Griffin single size boxes with electronic controls. The size level, temperature, and pressure exerted by the squeeze roll are all automatically controlled. The bottom roll is steel and the top roll rubber-covered. The temperature of the size in the size box is maintained at 205° F.

The size is prepared in five cooking kettles of 300-gal. capacity each and, after cooking, is held in two storage kettles. A batch of size is composed of 285 lbs. starch, 16 lbs. sizing compound, and enough water to finish 203 gals. of size.

The beams are handled in the slasher room with the aid of electric hoists and a MonoRail carriage system. Much of the manual labor required to move the big beams from truck to storage rack or to slasher creel has been eliminated. Then, too, the job is made more efficient and safer by the use of power-driven handling equipment.

FIBER BLENDING

CONTINUED FROM PAGE 123

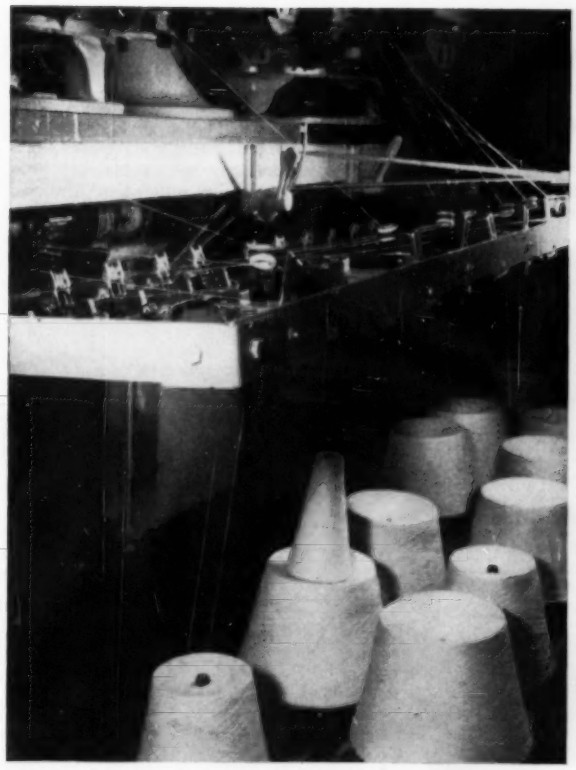
place under the delivery chute. There is no break in production for this operation; the stock is held in the reserve box for the few seconds required to shift the boxes.

The bales of staple are compressed and tied, without bagging, and stored for at least three days before use. It is necessary to keep a large stock of blended fibers on hand at all times. The synthetics mill uses 13 standard blends in routine production.

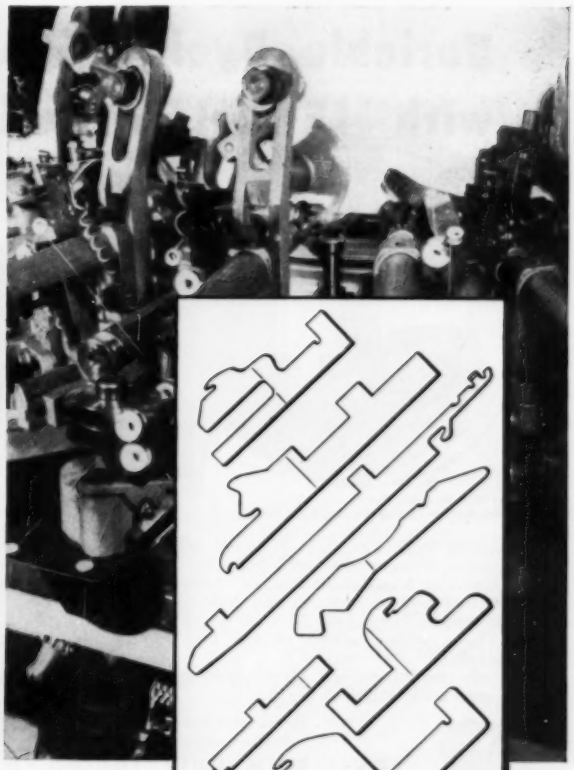
A typical blend is two units of dull nylon, two units of bright nylon, one unit of white nylon, and one unit of reworkable waste. Output of such a blend is 1,000 to 1,500 lbs. per hr., depending on requirements.

An occasional check is made by weighing the stock from the discharge hoppers of the Fiber Meters and comparing it with expected output. Variation to date has not exceeded 1%.

The effectiveness of the blending system at the synthetics mill is more apparent to the observer than at the cotton mill because the individual fibers can be identified. Before entering the Fiber Meters the stock is, of course, in different piles and is readily identified. In the bale the fibers have been mixed and appear in dull,



YARN BALLOON is kept large, but yarn is kept off the floor by a low rack under the stop-motion brackets. The yarn path is about 8 ft. long.



FURNISHING WHEE… are opened until the …heels …in.

How Griffin Knits FLEECE WITHOUT FAULTS

▶ **Electric stop motions, furnishing wheels, … spring-needle knitting machines improve q… breakage**

By **JAMES H. BLORE**, Assistant Editor, TEXT…

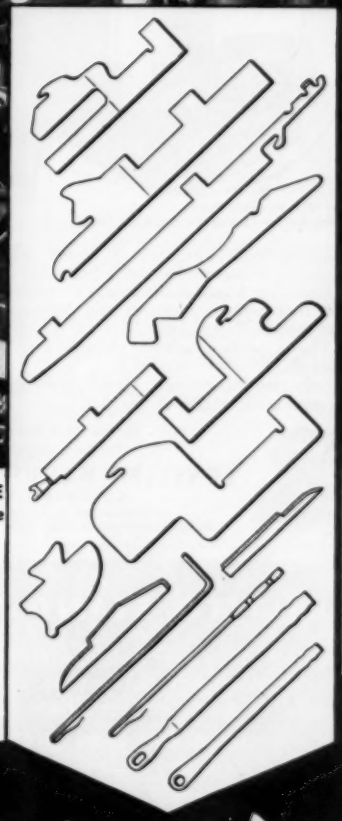
CHECKING ON FABRIC QUALITY re-cently, Griffin Knitting Mills, Inc., Griffin, Ga., discovered that 56 doz. heavyweight fleece garments were laid up without a fault in the cloth. A check on needle breakage showed that two needles were broken in one week on the seven new Tompkins D-2 machines that knit the fleece fabric.

The mill knits double-plush fleece from… and … rotate… chines … head is equ…

Low Rack Keeps Balloon Large

Press-offs are rare at Griffin because good yarns are used and the yarn path from the cone to the furnishing wheels …nes and to the furnishing wheels.

The porcelains are adjusted so that the yarn rubs on no rough surfaces. The stop-motion tension adjustments

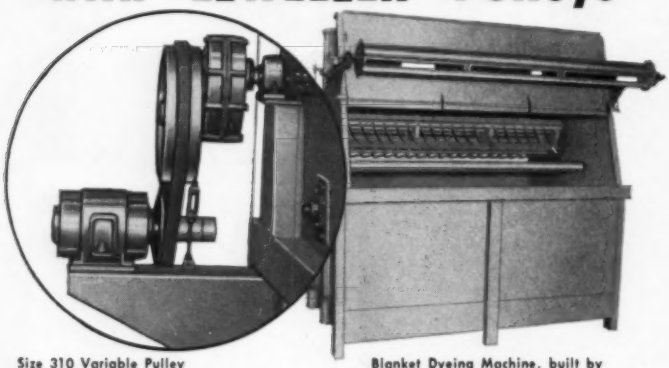


Ives Helped!

Here's a story so interesting Textile World made it an editorial report. The use of IVES precision made needles, specially hardened and tempered from more durable vanadium steel, helped make this editorial possible. Your machines will produce better fabric too at lower cost when equipped with IVES needles and parts for circular and tricot knitting machines. Let IVES help YOU increase profits. Write or wire.

THE LOYAL T. IVES COMPANY, INC.
NEW BRUNSWICK, N. J.

Variable Dyeing Speeds with LEWELLEN Pulleys



Size 310 Variable Pulley
5 hp. rating—3:1 speed range

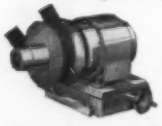
Blanket Dyeing Machine, built by
Specialty Machine Company, Dalton, Ga.

Variable Pulley mounts at motor, which is stationary, drives to shaft mounted reducer. Reducer turnbuckle adjusts centers and speeds.

Lewellen Variable Pulleys and accessories are versatile power components that perform smoothly and dependably – mounted in any position and operated in any manner.

The Lewellen adapts to any arrangement the resourceful engineer may plan.

Selection of ratings, speeds, and centers permits widest latitude for incorporating variable speeds.



Write for Variable Pulley Catalog No. 60
. . . Transmission Catalog No. 65

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BUILT TO STAND THE GAFF

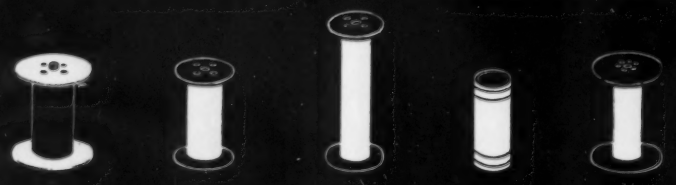
Now more than ever before with the many new types of synthetics it's important that bobbins be designed in every detail to fit specific needs of the user, then built to exacting specifications.

The Allentown Bobbin Works is a custom "shop" on a production line basis. You can have the individual variations your production requires at cost of a "standard" product.

All types of bobbins for fine yarn processing designed and built to fit your needs.

Brass bushings are now standard for all straight spindle bobbins.

ALLENTOWN BOBBIN WORKS, INC.
ALLENTOWN PENNSYLVANIA



TAKE-UP BOBBIN—BAKELITE BARREL, ALUMINUM HEAD.

WINDER-SPINNER BOBBIN-BAKELITE BARREL AND BUSHINGS, FIBER HEAD.

TWISTER BOBBIN—ALL BAKELITE BARREL AND HEAD—BRASS BUSHINGS FOR STRAIGHT SPINDLES.

HEADLESS PACKAGES IN SEVERAL TYPES OF ALL BAKELITE CONSTRUCTION.

SHIPPING BOBBIN—MAPLE BARREL, FIBER HEAD.

bright, and white swatches uniformly spaced throughout the bale.

After curing, the stock is taken from the bale and dumped into the receiving hoppers of the worsted cards. From the cards the fibers pass through both a breaker and a finisher pin drafter and then through the slubbers. When the roving comes from the slubbers, it shows a perfect blend; the various components can be identified as single fibers interspersed throughout the roving.

The installation of the Fiber Meters and auxiliary equipment has cleared up the blending troubles at Crown. Not a single complaint of filling bands in fabrics has been received since the systems were installed. In addition to clearing up the original trouble, the better blending of fibers has resulted in better-running work in general and improved employee morale.

AVONDALE INSTRUMENTS

CONTINUED FROM PAGE 127

forms for control of spare parts. These forms are being used for electronic tubes but will be adapted later to control all parts.

Electronic Tubes Move Fast

Electronic tubes are our fastest-moving item; we are using 30 different types of tubes and a total of 275 tubes. We plan to keep a supply for one or two months on hand. One report form lists the type of tube and the number of tubes used in each instrument. The other form lists all types of tubes, recommended spare tubes, and the present inventory of each type. The date of inventory checking is noted at the top of the column. Both of these forms are completed for each mill.

Three forms have been used in determining instrument operation, cost of instrument maintenance, and instruments in service. But only two forms are now being used.

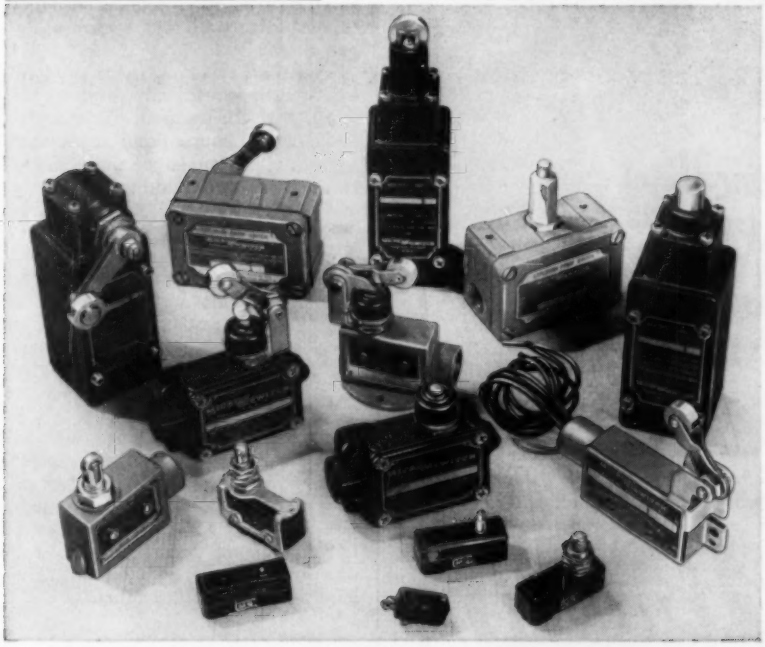
The first form is an instrument record. This form lists (1) the mill, the department, and the machine the instrument is used on; (2) the nameplate data of the instrument; (3) the annual cost of repair parts; and (4) the time required to maintain the instrument. Comments are added for specific occurrences.

Keep Records of Costs

The second form is a supplement of the instrument record. It is the day-to-day cost sheet and time sheet for instrument repairs. One or more of these sheets are attached to each of the instrument record sheets. This

MICRO precision switches

...THEIR USE IS A PRINCIPLE OF GOOD DESIGN



There are USES UNLIMITED for MICRO precision switches on textile machinery

Thousands of textile machines have been given a new lease on life, made more automatic, more productive and safer by the installation of one or more MICRO precision switches.

Whether you are a manufacturer of new textile equipment or whether you are a plant operating man, it will pay you to know about these extremely reliable, long-life precision switches.

Illustrated on this page are just a few types of these switches which have proved to be valuable in control of textile machinery as limits, safeties and interlocks.

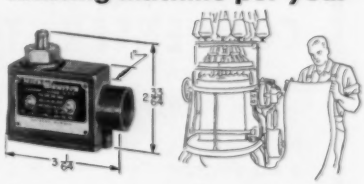
Here are just a few of the many uses mill owners have found for these versatile precision switches:

As trumpet stops for combing heads
•
To prevent needle breakage
•
To eject unfilled quills automatically
•
To control position of pressure roll
•
As thread breakage detectors
•
To position clamps on cloth stretcher
•
As selvedge build-up control
•
As carriage movement controls
•
To stop bobbin winding when bobbin fills
•
To stop motor when gear box is opened
•
To control tension of cloth
•
To control cloth position
•
As thread run-out detector
•
As fabric thickness detector
•
And many others

Stocks of many types of MICRO SWITCH precision switches for plant installations are available from distributors located in key cities for your convenience. For advice on just the switch most suitable for your application, experienced MICRO SWITCH engineering service is available for consultation. Call the branch office nearest you. Distributors and branch offices are listed under "Switches, Electric" in the Yellow Pages.

Mills find profits by making machinery safer—more automatic

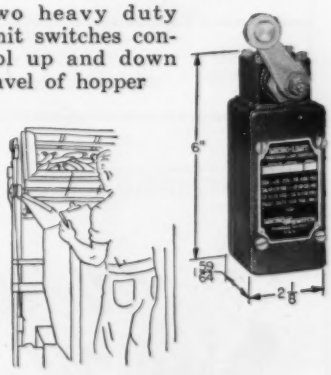
Saves $50 per knitting machine per year



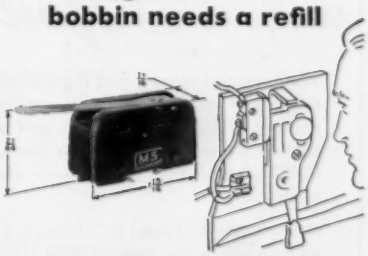
Two MICRO precision switches replace mechanical stops—protect needle beds.

Make quill loading an automatic job

Two heavy duty limit switches control up and down travel of hopper



Signals when bobbin needs a refill



As bobbin empties, bar touches switch to signal for refill.

Send for new catalog 83 on industrial switches

MICRO SWITCH

A DIVISION OF MINNEAPOLIS-HONEYWELL REGULATOR COMPANY

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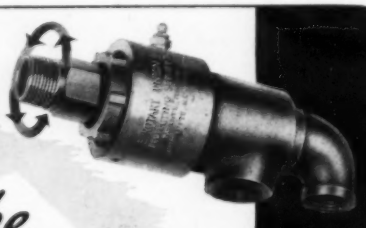

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We'll bet our money that the ROTARY UNION will outlast any other rotating steam or cooling joint. Test an equal number of ROTARY UNIONS and any other make on the same type equipment at the same time. If the ROTARY UNIONS leak first, return them and we will refund your money.

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PERFECTING SERVICE COMPANY

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sheet is a record of the repair parts required, cost of these parts, and labor. An explanation of repairs is made in the comment column. The items on this sheet are totaled and transferred to the instrument report form at the end of the year.

The third form was used primarily for moisture-controller operation and is no longer being used. We wanted to know how much these instruments were in operation; so we made rounds twice a day to determine whether an instrument was off, on manual, or on automatic control.

We found that keeping a record of these checks is not necessary, but we are still making the rounds of inspection at least once a day. This check is a reminder that we are maintaining the instruments, and it gives us a chance to observe how they are operating.

The first year of operation has proved successful beyond our expectations. We have the shop set up, have most of the testing instruments we need, and have a rough idea of the records we need to keep. And our engineer has a good working knowledge of the instruments.

CONTINUOUS PROCESSING

CONTINUED FROM PAGE 129

tank car to storage tank.

Dyeing Is Continuous

Cooleemee has two pad-steam dyeing ranges complete with hot flues where vat, pigment, azoic, naphthol, or sulfur dyes can be applied to piece goods as required. A third range is used for warp dyeing. All dyeing units are complete with drying cans, and goods are delivered almost within arm's reach of the finishing tenters.

A considerable yardage of goods is now going into the new wash-and-wear finishes. Modified urea resins and melamine resins provide the basis for these finishes. Procedure will vary with the style, but generally Cooleemee applies a 12½% solution of resin at a 60% pickup to get 5 to 6% of retained resin.

One routing is to pad, tenter-dry, and cure in one run. An interesting feature of this routing is that between drying and curing the cloth is led over compensator rolls before it enters the curing flue. This simple operation helps materially to straighten out any bow that may have developed in the fabric.

For Everglaze-tagged goods, the routing involves taking the resin-treated goods off the tenter while still slightly damp. The goods are

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Harper's Bazaar Photograph

...specify **GENERAL CHEMICAL**

BLEACHING
Sodium Silicate
Tetrasodium Pyrophosphate
Oxalic Acid
Sodium Bisulfite, Anhydrous
Hydrochloric Acid (Muriatic)

CARBONIZING
Sulfuric Acid
Aluminum Chloride, solution

RAYON MANUFACTURE
Sulfuric Acid
Hydrochloric Acid
Sodium Sulfite
Sodium Bisulfite, Anhy.
Glauber's Salt, Anhy.
Sodium Sulfate
Epsom Salt

DESIZING
Sulfuric Acid

DETERGENT
Disodium Phosphate, Anhydrous
Trisodium Phosphate
Tetrasodium Pyrophosphate
Sodium Tripolyphosphate
Sodium Silicate
Sodium Metasilicate

DYEING
Glauber's Salt, Crystal & Anhy.
Sodium Sulfate
Acetic Acid
Sulfuric Acid
Hydrochloric Acid
Aqua Ammonia
Oxalic Acid

SOURING
Sulfuric Acid
Hydrochloric Acid
Acetic Acid

OTHER USES
Sodium Thiosulfate
Nitre Cake
Aluminum Sulfate
Ammonium Alum
Potassium (Potash) Alum
Ammonium Sulfate
Mixed Acid
Chrome Alum
Lead Acetate
Ferric Sulfate (Iron Copperas Nitrate)
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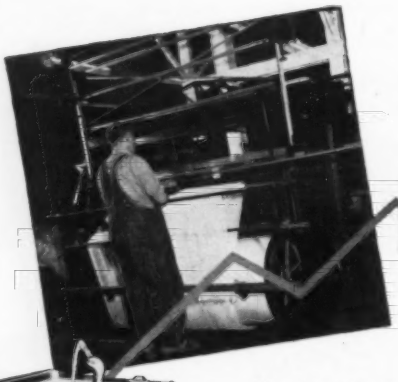


peak performance

Every textile mill is interested in peak performance. An abundant supply of cool water helps, keeping workers refreshed and banishing fatigue. So, to be sure of peak performance in drinking-water equipment, use Halsey Taylor Coolers, as so many prominent mills are doing.
The Halsey W. Taylor Co., Warren, Ohio

Explosion proof types (as illustrated), remote coolers, cafeteria models, wall fountains for shop or office. Write for catalog.

HALSEY® TAYLOR

Industry's Favorite Coolers

TW-60

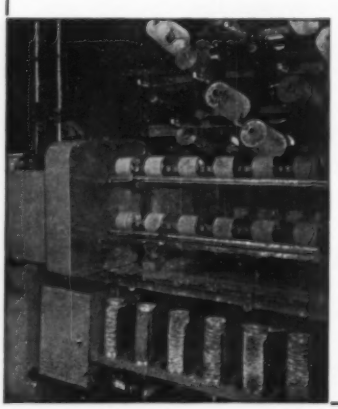
COLLINS (TWO TWISTERS IN ONE)

TWO TWISTERS IN ONE

The Collins C/B Novelty Twister with DUAL-DRIVE AND ULTROHEAD *FOR ALL YARNS*

The Collins C/B Novelty Twister is considered TWO TWISTER in ONE because each side of the frame can be run independently of the other side in regard to direction of twist, speed and yarn construction. This tape-driven dual-drive arrangement affords unlimited flexibility for the production of novelty and ordinary ply yarns.

The ULTROHEAD attachment is the most advanced mechanism ever developed for producing the widest possible construction variations in Splash, Nub, Seed, Bouclé, and Ratiné yarns.



The Collins C/B Novelty Twister was a star performer at Atlantic City and Greenville Shows. Today, mills are daily acclaiming its outstanding cost cutting performance and wide versatility. THERE IS A COLLINS TWISTER FOR EVERY PLY YARN CONSTRUCTION.

COLLINS BROS.
MACHINE COMPANY
647 Roosevelt Ave.
Pawtucket, Rhode Island

Builders of Novelty, Ply, Big Ring, Beam, Cabling, Wet, Trap, Rayon, Paper, Glass, Sample and Special Twisters for all yarns.

CHARLOTTE CHICAGO TORONTO
est. 1866

then put through a Schreiner calender and cured. On constructions where the warp predominates, such as jeans and twills, Schreinering improves the luster. The resin finishes tend to make the luster more durable.

All resin-finished goods are put through an open soaper before final finishing to remove surface and uncured resin and byproducts of the catalysis.

Most Goods Are Shrunk

The Sanforized finish is given a large proportion of fabrics handled by Cooleemee. Originally set up with six compressive-shrinking machines on the second floor, the plant now handles the load easily with four. The reason is conversion of two of the units to rubber belts instead of the older felt blankets.

A. J. Torkaz, plant superintendent, says, "I've seen us 750,000 yds. behind in our shrinking with the department working seven days a week. The rubber belts give us more production at less cost. Reruns to pick up excessive shrinkage have been eliminated."

Immediately in front of the compressive shrinkers, six hookers are located. As the goods are yarded off, the operators place them on a conveyor. The necessary tickets and tags are placed on each cut, which then moves into an automatic tying machine. Invoicing and packing complete the job.

MULTIPURPOSE GAUGE

CONTINUED FROM PAGE 131

to move or readjust any of these filling-motion parts.

If this motion is not operating as it should, a quick check with the gauge will show if the settings are correct. The parts that are gauged correctly should not be tampered with, and further checking should be done to locate the real source of the trouble.

Other parts and motions of a loom can be set or checked with the multipurpose gauge in similar fashion. If the settings have been carefully worked out for the loom and the gauge is correctly used, the loom will operate more efficiently with less downtime for repairs and maintenance.

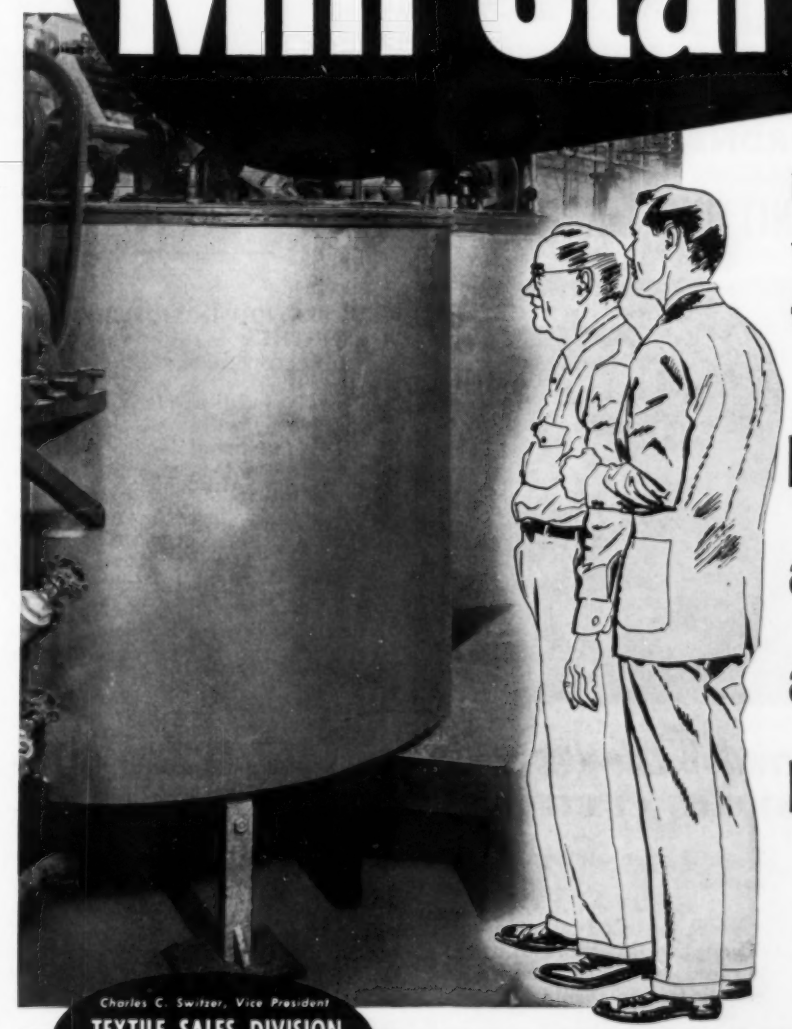
Gauge Is Not a Cure-All

However, the multipurpose gauge is not a cure-all. It cannot be carried around in the pocket and miraculously put all the looms in correct running condition. The gauge is only a tool and as such it must be used constantly and accurately.

If all the loomfixers on a section of

VICTOR Mill Starch

A KEESTAR PRODUCT



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because it's always uniform and backed by Keever Service

Charles C. Switzer, Vice President
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big business, big profits for you

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● Manufacturers of children's sweaters, like manufacturers of men's and women's knitted outerwear, enthusiastically endorse and recommend ORDNANCE equipment. They praise its low operating costs—based on total production of FIRST QUALITY MERCHANDISE—top-speed change-overs that permit the style changes necessary for volume sales! Install OGA or OTA machines and

you *safely* invest in equipment of *proven* performance; why, then, *risk on experiment?*

NOW, with new, exclusive refinements and added operating range OGA and OTA machines are your soundest investment in equipment. ● Investigate the all-new 32" diameter machines to produce coarser gauge goods as well as the finer gauges usually made on smaller diameter machines.

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SALES REPRESENTATIVE
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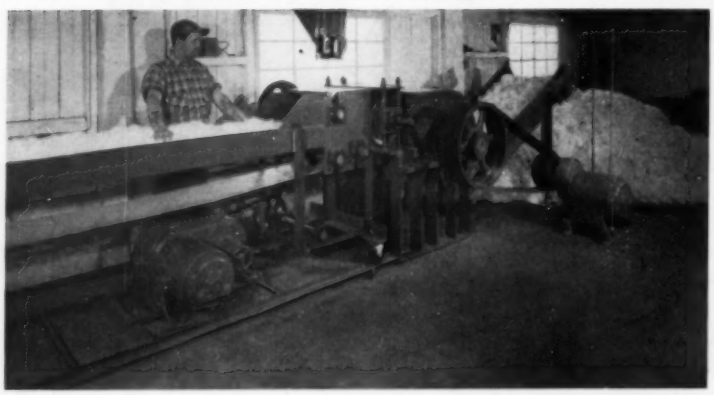
OGA OTA **ORDNANCE GAUGE** CIRCULAR, FULLY AUTOMATIC **KNITTING MACHINES**

HAE-OG197-256



Cut 2000 Lbs of Thread Waste Per Hour

with TAYLOR-STILES CUTTER

An important manufacturer found they were able to cut 2000 pounds of nylon waste an hour with their Taylor Stiles Thread Waste Cutter—"as fast as a man can handle it." The yarn was cut with a spacing of 3"—and after cutting was garnetted.

We'll be glad to give you descriptive literature illustrating and describing our various cutters for the textile industry.

TAYLOR, STILES & COMPANY
15 BRIDGE STREET
RIEGELSVILLE, NEW JERSEY

looms do not use the gauge and adopt uniform loom settings, the value of the gauge will be nil. The greatest value in the use of any gauge is that the best setting can be obtained and that all such settings will be uniform. There is no advantage to be gained by carefully setting a number of related parts and then having some one on the next shift move one of the parts and throw the entire motion out of kilter.

To set up a successful loom-gauge system, there are three important steps to take. First, design the gauge for the looms with which it is to be used; second, sell the idea of using the gauge to all loomfixers and supervisors; third, use the gauge constantly and consistently.

Once the merits of the multipurpose gauge have been realized, all concerned will admit that it is worth its weight in gold. Yet, the gauges can be furnished to the loomfixers for less cost than one hour's wages. If correctly used, each gauge will pay for itself every day in increased loom production, better-quality cloth, savings on repair parts, time saved by loomfixers and supervisors, and better worker morale.

VARIATION IN HOSIERY LENGTHS

CONTINUED FROM PAGE 137

ble the variation of full-fashioned machines with the same yarn.

12. Machines of different manufacture vary in the amount of length variation.

13. The method of length control is often a factor. Knitting-machine adjustments add to length variations if they are made indiscriminately.

14. Machines that are in a poor state of adjustment superimpose variations on those that are caused by the yarn.

15. Differences in yarn-guide surfaces and types cause length variations. Smooth surfaces give greater drag.

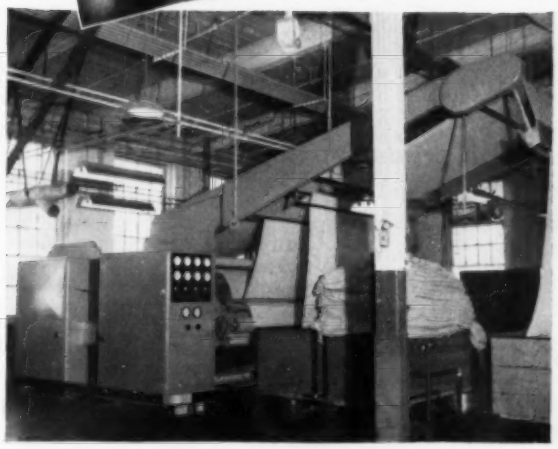
16. Worn and grooved guides add to irregular tension.

17. Correct and equal tension on the yarn, of course, is important. Most forms of tension multiply and exaggerate the effects present in the yarn package.

18. Presetting is claimed by some mills to reduce the variation in lengths by reducing the effect produced by pulling power from different preboarding operators.

19. Air conditioning affects machine efficiency probably more than leg length. Some of the effects noted in the tests may have been due to

Napping Blankets?



Only EXACT Controllable Power

can produce the effect you want, so quickly

The face and back Hi-Torc Blanket Napper you see here — built by Gessner to nap opposite sides in ONE run — gets into the fabric to the proper depth and rapidly plucks from the start.

Hydraulically operated, the Hi-Torc Napper in tandem produces immediate and controlled power to obtain the precise napping effect you desire. The entire napping range is pin-pointed on the panel dials in front of the operator. Once the amount of napping energy is indicated in terms of pounds of pressure, then this energy can be maintained, run after run, day after day, regardless of heat and cold, humidity changes, dirt or flock — all enemies of ordinary napping power transmission.

Gessner has made possible the control of the cloth tension and the napping effect of both machines from this one panel. Instead of multiple runs, a single breaking, raising and finishing run on this Hi-Torc machine produces a finished blanket.

Hi-Torc is making blanket history. May we tell you more about it?

DAVID GESSNER CO.

WORCESTER, MASS.

Canadian Representative: W. J. Westaway Montreal, Quebec; Hamilton, Ont.

Gessner takes the guesswork out of napping.

AT THE GREENVILLE SHOW,

see us for samples and information on . . .

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COATS & CLARK'S NYLON RING TRAVELLERS

for spinning and twisting frames

1. Higher speeds
2. More yards on bobbin
3. Longer life
4. Cleaner rooms
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7. Less end breakage
8. Less down time
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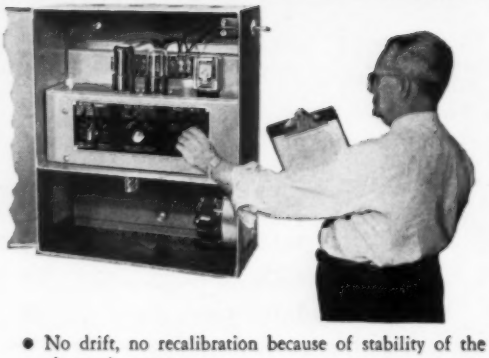
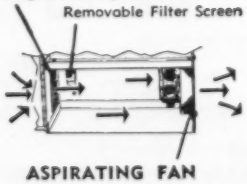
BARBER COLMAN
ELECTRIC-ELECTRONIC
Automatic Controls

Humidity control the *electronic* way



Plug-in Sensing Element
Removable Filter Screen



ASPIRATING FAN
. . . in "Control Center" cabinet draws sample filtered air over sensing element to assure uniform conditions throughout shop. Get complete details from nearby Field Office or write for Bulletin F-5173-1.

- No drift, no recalibration because of stability of the electronic system.
- Unusual accuracy of modern electronic control with minimum adjustments.
- Only four elements required to cover entire range of 25% to 95% relative humidity.
- Easily read dials housed in tamperproof "Control Center" cabinet with super-sensitive sensing element.

Barber-Colman Company
DEPT. E, 1341 ROCK ST., ROCKFORD, ILLINOIS, U. S. A.

temperature and humidity variations.

Watch Preboarded Lengths

20. Boarding techniques and methods affect leg lengths. A 1-in. difference was measured when stockings were preboarded by two different operators.

21. The tightness of the welt determines whether the stocking will stay in the same position as placed by the boarder.

22. Good supervision in the preboarding and boarding room will diminish leg-length variations.

Efforts are being made by yarn producers to reduce the yarn variations, and suitable control systems can be used in the mill to reduce the remaining variables.

DYE AND FINISH ARNEL

CONTINUED FROM PAGE 134

Celliton Yellow 4RL have poor washfastness on the Arnel component. To achieve optimum washfastness in heavier shades, a heavy scour is necessary to remove part of the Celanthrene Cerise B and Celliton Yellow 4RL from the Arnel component.

The Arnel should be shaded with such recommended Arnel disperse dyes as Eastone Red GLF and Interchemical Yellow HDLF-40, using tripropyl phosphate as a selective accelerant for the Arnel.

No special problem in heat-treating Arnel-Dacron fabrics has been observed, although the Dacron component does shrink during the heat treatment.

POINTERS

CONTINUED FROM PAGE 139

in the form of complaints about the job's not running right or the jobload being too heavy.

However, an investigation discloses that the real cause of dissatisfaction is not what the employees have indicated it is; rather the cause lies in the failure to explain to the employees the reason behind a change in operations or methods. They are uncertain as to the reasons for the change, they are a little apprehensive as to what it may mean, and so their feeling of security is thrown temporarily off balance.

Dig behind the symptoms in such an instance and find the actual cause. Then in the future you can practice the physician's preventive-medicine technique by doing a better job of ex-

There's only one basic reason for preferring

ECLIPSE BOBBIN HOLDERS

They produce better fabrics at less cost

Actually, of course, there are many reasons for the superiority of Eclipse Bobbin Holders. Easy installation, reduced maintenance requirements (resulting in substantial savings in labor costs), resistance to rust, durability (some holders in operation for more than ten years) and many, many more. Put them all together, though, and they add up to one basic fact: with Eclipse, you get *better fabrics at lower cost*. And what better reason could there be for the amazing sales increase Eclipse has enjoyed in the past year. The textile industry has discovered that the use of old-fashioned wooden skewers is inefficient and costly. The modern way to spin cloth is with Eclipse Bobbin Holders. Our increased plant capacity now assures you of prompt delivery. Write or call Eclipse Machine Division today.

ECLIPSE MACHINE DIVISION ELMIRA NEW YORK

Bendix AVIATION CORPORATION

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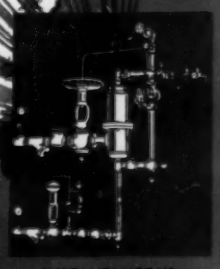
WEST BEND, WISCONSIN



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Norgren the most complete line of AIR LINE FILTERS

...to remove oil, corrosive moisture, abrasive pipe scale, rust, and other solids from compressed air...

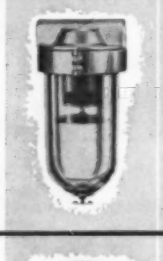
...to reduce corrosion, wear, upkeep costs of air equipment

85 MODELS-7 PIPE SIZES-3 TYPES OF FILTER ELEMENTS-3 TYPES OF BOWLS

AUTOMATIC-DRAIN FILTER
¼", ⅜", ½", ¾", 1". For pressures up to 150 psi.; temperatures up to 120° F. Filter elements: 74–, 64–, or 25-micron. Replaceable, transparent bowl. Series 11,200.

NEW REPLACEABLE METAL BOWL FILTER
¼", ⅜". For pressures up to 250 psi. and temperatures to 300° F. Replaceable metal bowl. Filter elements: 74–, 64–, or 25-micron. Series 12,200N.

TRANSPARENT BOWL FILTER
For pressures up to 150 psi. ¼", ⅜", ½", ¾", 1". Replaceable transparent bowl in two sizes. 74–, 64–, or 25-micron filter elements. For temperatures up to 120° F. Series 22B.



PERMANENT METAL BOWL FILTER
Permanent, metal bowl. ¾", 1", 1¼", 1½". 74-micron filter. For pressures up to 250 psi.; temperatures up to 300° F. Models 558, 560, 561, 562.

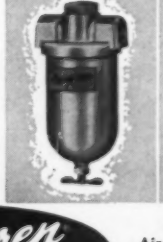
REPLACEABLE METAL BOWL FILTER
For pressures up to 250 psi. ¼", ⅜", ½". Replaceable, metal bowl. Filter elements: 74–, 64–, or 25-micron. For temperatures up to 300° F. Series 22N.

NEW METAL BOWL FILTER
¼", ⅜". Low cost replaceable metal bowl filters for use where removal of solids is of primary importance. Filter elements: 74–, 64–, or 25-micron. Series 30AD.

SMALL BOWL FILTER
¼", ⅜". For pressures up to 150 psi., temperatures up to 120° F. Replaceable, transparent bowl. 74–, 64–, or 25-micron filter element. Series 12,200.

AIR PURIFIER
For exceptionally thorough removal of moisture at low rates of air flow. 74-micron Wire Screen and Yarn filter elements. Replaceable, transparent or metal bowls. ¼". Series 21B and 21N.

SMALL, METAL BOWL FILTER
For pressures up to 250 psi. ¼", ⅜". 74-micron filter. Permanent bowl. For temperatures up to 300° F. Series 0-552 and 0-554.



FILTER-REGULATOR UNIT
Automatically filters air and regulates air pressure. Filter bowl is replaceable—transparent bowl for pressures up to 150 psi. and metal bowl for pressures up to 250 psi. 74–, 64–, or 25-micron filter element. ¼", ⅜". Series 5A and 5N.

C.A. Norgren CO.
3404 So. Elati St., Englewood, Colo.

Without obligation, learn how Norgren Air Line Filters can reduce costs in your plant. Call your nearby Norgren Representative listed in your telephone directory—

or WRITE THE FACTORY FOR NEW No. 700 CATALOG.

Wherever Air is Used in Industry

plaining in advance about changes in the job.

Here's a case that supports the much-repeated observation that labor trouble is the result of management trouble. This problem—actually a series of problems—affected a group of 12 men on a key operation. For a period of perhaps nine months, the operation was virtually in turmoil, with constant bickering, a flood of complaints and grievances, obvious bad feeling between employees and supervisors, and a sagging production performance.

There was unanimous agreement among the various levels of management concerned that a particularly outspoken employee, a real troublemaker, was at the root of all the discontent. Over a period of months, many attempts were made to curb his influence and to remove him from the scene, but the moves were ineffectual.

The whole situation was then surveyed very carefully to see if some effective approach could be developed. This investigation brought to light that the immediate supervisor was an overbearing individual, very critical and sarcastic in his approach to workers, addicted to the use of abusive language, and totally unwilling to listen to any problems brought to him by his workers. This supervisor was transferred gracefully to another assignment, and a man with a top-flight reputation for handling people replaced him as supervisor in the trouble spot.

The results of this approach were startling. In a matter of one month, the atmosphere in this troublesome operation changed completely. Production picked up and complaints vanished. The supposed troublemaker among the employees became reasonably cooperative and at least no longer a disruptive influence.

In this situation, it took a long time to establish that the real cause of the trouble lay in the inadequate handling of people by the original supervisor. A cursory examination of the symptoms had indicated that a troublemaker in the employee group was the spearhead for the discontent; only by looking beyond the symptoms to the actual causes was the problem finally cured and preventive action for the future taken.

In this column, I am trying to make just one important point. Symptoms of employee discontent should be watched for. When they appear, they should be carefully investigated to establish the actual causes. In other words, look beyond the symptoms to

Acetate colors

for every need

A.A.P. was the first successful U. S. producer of dyes designed specifically for acetate fibres, and its constant stress on quality has made and kept AMACELS the top-ranking favorites in this field. ***New, improved*** AMACELS provide a popular range of colors for dyeing acetate fibres of every type. Listed below are a few of the reasons so many leading acetate dyers rate these colors ***tops*** for quality and reliability.

Amacels* for . . .

EXCELLENT FASTNESS to light, gas fading, sublimation, decatizing.

"PLUS" ADVANTAGES of simplified application—consistent shade purity—good "pile on"—level dyeing.

ADAPTABILITY—for *dyeing*—box or jig—Acetate yarn—Nylon hosiery; also suitable for *printing*, screen or machine.

For full information on AMACELS, along with data pertinent to your individual problems, consult our nearest branch. Our technicians will be happy to arrange a trial run in your plant.

50 Union Square, New York 3, N. Y.
Plant: Lock Haven, Pa.

Branches:
Providence, R. I. • Philadelphia, Pa.
Paterson, N. J. • Chicago, Ill.
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*Reg. U. S. Pat. Off.

AMERICAN ANILINE PRODUCTS, INC.

Details from the organisers:
TEXTILE RECORDER MACHINERY & ACCESSORIES EXHIBITIONS LTD.
Old Colony House, South King Street, Manchester 2, England.

find causes; don't make the mistake of jumping to hasty conclusions. Take the time and the effort to find out what the causes really are because then, and only then, you can decide on the proper measures to remedy the present problem and prevent recurrence in the future.

DEVELOPMENTS TO WATCH

CONTINUED FROM PAGE 8

WOVEN WOOL FABRIC PRODUCTION . . . for men's and boys' wear reached a post-Korean War peak in 1955, rising 17% above the 1954 level, The Wool Bureau reports. The 1955 output was 140-million yds., compared with 120-million yds. in 1954. Major trends reflected in the 1955 output were the growing emphasis on fabrics weighing from 9 to 13 oz. per yd. and the continued gains by fabrics of woolen construction. The production of woven wool fabrics for women's and children's wear in 1955 also reached its highest level since the Korean War with a total of 149-million yds., 11% higher than 1954 production.

MEN'S COTTON SUITS . . . are headed for a banner year this summer. Manufacturers are showing all-cotton suits for business and leisure wear in greater quantities than have appeared on the market in many years. Bulky fabrics, such as cotton tweeds and gabardines, are on the horizon for fall and winter. New weaves and finishes offer designers a wider range of cotton fabrics to work with than ever before.

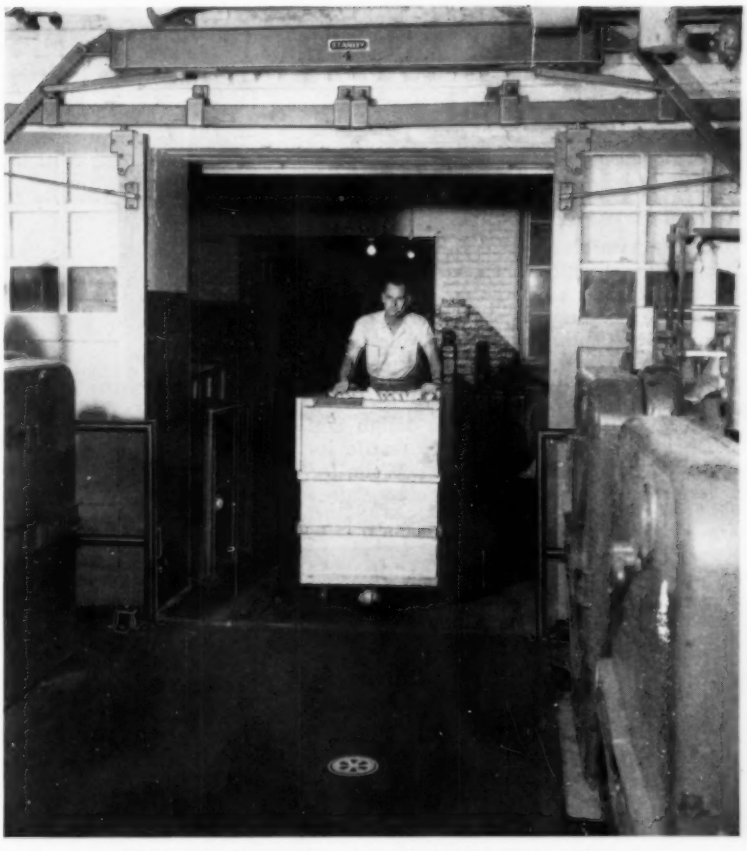
TEXTILE PROCUREMENT . . . for all armed services will be handled in the future by the Army Quartermaster, according to a formal directive recently issued in Washington. However, the individual services will continue to draw up their own specifications, make up requisitions, and distribute goods.

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 150

Long-Wearing Picker Teeth

Long-wearing picker teeth for all types of picking applications have been announced by Robert A. Main & Sons, Inc., 257 Pascack Rd., Paramus, N. J. The teeth, heat-treated



Stanley Magic Eye Control at The Springs Cotton Mills, Lancaster, S. C. Plant . . . largest weave mill under one roof in the world.

Colonel Elliott Springs Enlists

to control temperature and humidity . . . and reduce end breakage

Drafts or loss of humidity mean end breakage near the doors, resulting in accumulation of waste, work stoppage, poor quality and lower production. So mill doors must stay open *only the minimum time required to let traffic through.* That's why Colonel Elliott Springs uses 40 Stanley Magic Door Controls in the various plants of his world-famous The Springs Cotton Mills. Reductions in door accidents and door maintenance costs are bonus benefits.

Write for complete information on Stanley Magic Door Controls . . . Magic Eye (photoelectric), Pull Cord and Push Plates.

MAGIC DOOR DIVISION, THE STANLEY WORKS
Dept. E, 1132 Lake St., New Britain, Conn.
Representatives in Principal Cities

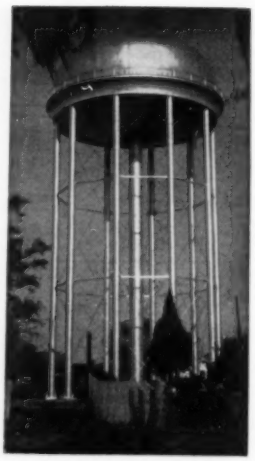
Stanley Tools • Stanley Hardware • Stanley Electric Tools • Stanley Steel Strapping • Stanley Steel

For more information, write direct or use Reader-Service post card.

TANKS AND VESSELS FOR THE TEXTILE INDUSTRY

● COLE builds elevated tanks and vessels to your specifications — dye-vats, kiers, starch-kettles, acid tanks, jib-boxes, or other processing vessels for the finishing and dyeing industry . . . in stainless steel, nickel-clad steel, or of standard steel lined with Monel metal.

Our long experience in the design and fabrication of vessels for the textile industry may be of help to you. Write for latest COLE catalog—*Tank Talk.*



Established 1854

R. D. COLE Manufacturing Co., Newnan, Ga.

- TANKS
- TOWERS
- CYLINDERS
- VESSELS
- STANDPIPES

picture from plant of LUISA SPAGNOLI Perugia, Italy —one of our foreign users

TOMPKINS

over 110 years' proven performance—
LATCH AND SPRING NEEDLE KNITTING MACHINES

"mostest runnin' knittin' machines in the plant!"

The Head Knitter of an U. S. mill made this brief yet factual statement. Knitters in the know are quick to substantiate the comment, with good reason. The Tompkins record stands undisputed . . . over 110 years of proven money-makers to the Knitting Industry.

We see some Tompkins machines running that are 70 years old — still going strong despite their outdated performance in comparison with new model Tompkins machines. It's like seeing an old Model T alongside a new '56 Ford! Let us help you put in a modernization plan.

— *ESTABLISHED 1864* —

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TOMPKINS
MODERN SPRING NEEDLE
KNITTING MACHINE

with changeable feeds to make

• Fleece Coatings • Sweat Shirts
• Jersey • Terry • Patterns
• Stripes • Lastex Inlay

—all on the same machine!

and made of a special alloy, are said to wear much longer under hard usage than the teeth previously sold by the company. Other advantages are lower maintenance costs and shorter down-time between cylinder changes.

Circle T-17 on Reader-Service Card

Microscope

The Leitz Textile Stereoscopic Microscope is available from George Scherr Optical Tools, Inc., 200 LaFayette St., New York 12, N. Y. The stereoscopic feature gives a third-dimensional effect, showing each individual thread in sharp relief and reducing eyestrain. A thread-counting attachment is available for use with the microscope for the counting of picks and ends in fabrics.

Circle T-18 on Reader-Service Card

Cloth-Winding Machines

Winding machines for many purposes are being marketed by Hobbs Mfg. Co., Dept. 355, 694 Salisbury St., Worcester 5, Mass. The units are engineered for specific jobs and feature constant-tension drives operated independently of the main drive of the machines to which they are attached.

Circle T-19 on Reader-Service Card

Seamless Mechanical Tubing

Seamless mechanical tubing in round, square, hexagonal, and rectangular shapes is being offered by Babcock & Wilcox Co., Tubular Products Div., 712 Eleventh St., Beaver Falls, Pa. The tubing can be bent, flanged, and flattened while it is either cold or hot. It can easily be sawed, turned, drilled, bored, or milled.

Circle T-20 on Reader-Service Card

Do-It-Yourself Racks

You can build your own shelves and racks if you use deck fittings made by B. J. Philips Co., 110 W. 30th St., New York, N. Y. The fittings are fastened on piping that should be bought from your local dealer. Plywood bought from your lumber dealer completes the supplies needed.

Circle T-21 on Reader-Service Card

Safe Clutch Control

An improved electric two-hand control, Micro switch trip control, for

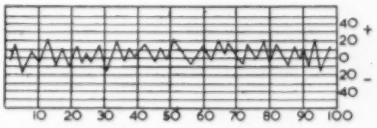
Before you buy any

ROVING FRAMES

learn what the world's largest maker of textile machinery has to offer you...

One of Carolina's best known mills is finding the operation of Platt Roving Frames highly profitable. The frames cost less than they had expected to pay. They were able to increase production in the same floor area. The more even roving has cut their spinning costs.

You may be able to make the same savings. If you wish to compare the production, workmanship and cost of Platt Frames with others you are considering, please call us. When investing in capital equipment, *it pays to have a roving eye.*



NON-STRETCHED roving is achieved by adjustments of the builder motion which holds a more even tension throughout the build of the bobbin.

REDUCING VIBRATION makes a better roving, reduces noise and maintenance and increases the life of the frame. Helical cut spindle shaft, bobbin shaft, spindle and bobbin gears run more smoothly and seldom need replacing. Liberal use of ball bearings contribute to quiet operation and produce a more even roving. All lines of bottom steel rolls are screw coupled for true running. A built-in motor provides a smooth vibrationless drive without pulleys. Cintered metal in the roll stands gives the rolls a long life without chattering. Fiber gears in the head end further reduce vibration.

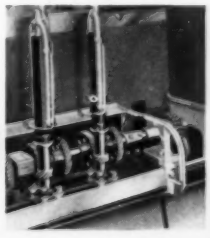
SERVICES are comprehensive and include a Charlotte stock of supplies for all Platt frames. The engineering facilities offered mills are of the highest calibre and are backed by Platt's worldwide experience in cotton spinning.

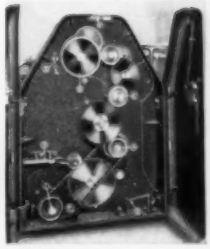
ANY DRAFT from as low as you will need to as high as required can be obtained, depending upon the drafting system selected.

MORE SPINDLES in the same floor space is achieved by efficient design. You can increase roving production without increasing the area used.

SAFEST frame ever built, it is fully enclosed in the front and rear and cannot be started while any door or gear cover is open. When any door is opened, the machinery is illuminated for service work. The fully encased frame also prevents breakdowns caused by sliver falling off the cans and getting into the gearing.

LOWER INSTALLED COST of a Platt frame is a factor in reducing your capital requirements. Smooth operation and longer life reduces your manufacturing costs. The more even roving will in turn reduce further spinning costs. To get the most machine for your dollar, *compare before you buy.*





a. h.

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TEXTILE MACHINERY AGENTS & ENGINEERS SINCE 1823
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We can elongate them to any length desired. The taper bore is extended into the elongated ends. Our exclusive copper bonding and fusing process produces an undetectable homogeneous union of high quality. Roll circumference is reduced $\frac{1}{16}$ to $\frac{1}{8}$ only depending on depth of engraving. We guarantee complete satisfaction, and the big saving you make over the cost of new copper rolls is money in your pocket. Take advanatge of your present inventory of short rolls by having us convert these to the lengths needed now, and at a real saving. WRITE, WIRE or PHONE for complete details and free estimate.

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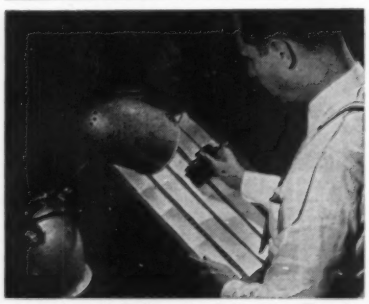
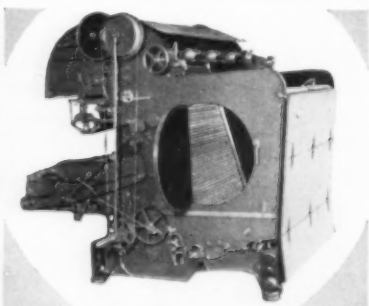


Magical Black Light Ends Color Matching Rejects

Here at last is a method that takes the guesswork out of color matching — and eliminates rejects. Under Blak-Ray light, even the slightest variations in color tones are visible. Plants report that preliminary inspection under black light is saving its cost every week by eliminating rejects before they happen.

Result: yarn and fabric manufacturers—spinners, weavers, knitters, finishers, bleachers, printers and throwsters — are fast adopting the black light system.

Full details are given in new Case History #111X, available free from the **Black Light Corporation of America,** Distributors for Ultra-Violet Products, Inc. 5114 Walnut Grove Avenue; San Gabriel, California. Distributors in principal cities.



Specify Harwood Aprons

for BRAMWELL® FEEDERS

Geo. S. HARWOOD & Son

50 Lagrange St., Worcester 8, Mass.

industrial machines has been announced by Minneapolis-Honeywell Regulator Co., Industrial Div., Wayne and Windrim Ave., Philadelphia 44, Pa. Because both hands of the operator must be on the controls all the time, operator safety is insured. The control also increases machine production.

Circle T-22 on Reader-Service Card

High-Speed Grease Gun

A grease gun that delivers an ounce of grease in only six strokes of the lever has been announced by Lincoln Engineering Co., 5742 Natural Bridge Ave., St. Louis 20, Mo. This delivery is possible with No. 1 cup grease at 70° F. The gun is designed to service bearings that require large quantities of lubricant. The gun holds 21 oz. of lubricant.

Circle T-23 on Reader-Service Card

Hollow-Head Setscrews

Hollow-head setscrews with the socket extending the full length of the setscrew are available from The Bristol Co., Socket Screw Div., Waterbury 20, Conn. The screws are available in sizes from No. 4 wire to 1-in. dia. and are made in both hexagonal and multiple-spline sockets.

Circle T-24 on Reader-Service Card

Electrostatic Neutralizer Bars

Elimination of static from textiles while they are being processed is accomplished by a device marketed by Herman H. Sticht Co., Inc., 27 Park Place, New York, N. Y. The neutralizer works on the induction principle and requires no power supply. A series of brass bristles, mounted in a wooden support, are connected together and grounded to the machine affected. Fabric passing near the bristle tips gives up its electrical charge to the ground.

Circle T-25 on Reader-Service Card

Better Light Bulb

An improved incandescent light bulb that will increase light output up to 15% without any increase in the amount of electric current required has been developed by General Electric Co., Nela Park, Cleveland 12, Ohio. The industrial lamps will look and cost the same as present ones.

Circle T-26 on Reader-Service Card

Flock-Printing Machine

An electrostatic system deposits the flock in a machine developed by Text-

THIS MAN IS MAKING
HIS REPUTATION . . .

DOW

HAVE YOU CHECKED THE SAVINGS YOU MIGHT GET WITH 73%?

The gentleman above has just been struck by an idea. It may very well save his company an appreciable amount of money. The thought: Dow caustic soda in 73% solution is probably *his* best buy, too.

If someone in *your* organization hasn't checked the changed caustic picture lately, you may be missing this chance to save. Hundreds of caustic users *have* discovered the new economy of Dow's 73%. Why an economy? Because today's *increased freight rates* more than cancel out the narrow price difference between 50% and 73%.

A second point of savings, particularly for greater volume users, is the *unloading operation*. Many man-hours are saved because 73% unloads in the same amount of time as a car containing a lower concentration.

A Dow Technical Service man can give you an accurate picture of the savings you could realize with 73%. And don't rule out 73% even if you're now on solid or flake. The pertinent, factual information you get so easily is one of the advantages of dealing with Dow. THE DOW CHEMICAL COMPANY, Midland, Michigan, Dpt. AL 392E-1.

you can depend on DOW CHEMICALS

DOW

For more information, write direct or use Reader-Service post card.

Beetle-lite* Fiberglas Trucks Will Not Dent—Crack—Scratch Rust—Rot Snag

None of the usual . . . or the unusual . . .
mill hazards will impair the looks or the efficiency of a Beetle-lite Fiberglas Truck. Strong continuous top and bottom steel reinforcements, completely enclosed heavy seamless molded Fiberglas body, make it practically indestructible. Color is molded in, thus eliminating the need for painting. Satin-smooth finish will not scratch and hence cannot snag. Beetle-lite is impervious to all dyes and chemicals used in mills.

Beetle-lite Trucks will save you money in any part of your mill. Made in 9 sizes, with or without drain bottoms. Write for full information today.

*Beetle-lite is the exclusive property of the Beetle Boat Co. and Beetle-lite trucks, doff and tote boxes, vats, crocks and tubs are sold exclusively to the textile trade in the United States and Canada by W. D. Dodenhoff Co., Inc.

W. D. DODENHOFF CO
INCORPORATED
GREENVILLE, SOUTH CAROLINA

O-Stat, Olten, Switzerland. Completely self-contained, the machine can print patterns through the usual screens or be used for over-all effects. The flock adhesive is dried by infrared heaters. Production is in excess of 1,000 yds. per shift. The machine can be used for regular screen-printing purposes.

Circle T-27 on Reader-Service Card

Column-Mounted Motors

Gear motors made to mount on top of columns are being made by ACEC Electric Corp., 40 E. 49th St., New York 17, N. Y. Mounting the motors on the columns has the following advantages: (1) the motor is out of the way and gives more floor space, (2) the motor is protected from dirt, oil, and water, and (3) only short belts are needed to connect the motor to the machine. Typical textile applications are cards and nappers.

Circle T-28 on Reader-Service Card

Roof Ventilator

A squat mushroom-type power roof exhauster to ventilate buildings is being produced by Chicago Blower Corp., 9869 Pacific Ave., Franklin Park, Ill. The ventilator is completely concealed by parapet walls and provides lightproof and positive-controlled ventilation in any weather.

Circle T-29 on Reader-Service Card

Exhaust Fan

Fans for handling corrosive exhaust, high-temperature explosive fumes, and similar difficult air-moving applications have been introduced by Robbins & Myers, Inc., Springfield, Ohio. The fan is designed for motors of ¼ to 5 hp. It is available in five sizes from 16 through 36 ins.

Circle T-30 on Reader-Service Card

Vibration Mounting

A vibration mounting for medium- and heavy-weight machinery has been developed by T. R. Finn & Co., Hawthorne, N. J. The mounting offers a high degree of vibration, shock, and overload control. Load capacities of the mounting, Floating Pillow, range from 500 to 2,500 lbs. each.

Circle T-31 on Reader-Service Card

Trolley Conveyor Wheel

A flangeless trolley conveyor wheel, 4-in. AF, with a load rating of 600 lbs. has been developed by Alvey-Ferguson

CONTINUED ON PAGE 220

AVISCO RAYON BUILDS REVOLUTIONARY NEW TOUGHNESS INTO ABRASIVE SCREENS

"Scrim" cloth, made with rayon, has resulted in a tough new sand screen that lasts 7 to 15 times longer than conventional abrasive discs.

American Viscose worked with The Carborundum Company in developing this superior product.

Two things explain its extra life:

First, removed material flows out through the open mesh.

Second, the screen is made from AVISCO rayon filament yarn that stays "young and muscular" even when loaded with phenolic resins and abrasives.

Perhaps AVISCO rayon could help you improve a present fabric or create a new one. Just drop us a line or give us a call.

American Viscose Corp., 350 Fifth Ave., New York 1, N.Y.

AVISCO

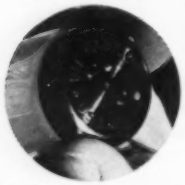
America's Greatest Industries Grow with **AVISCO®**

For more information, write direct or use Reader-Service post card.

Ask these questions, too, when you judge a fluorescent lamp...

Are its electrodes built for longest lamp life?

Constant development of new and better ways to make fluorescent lamp electrodes has enabled Westinghouse to *triple* the life of its fluorescent lamps since 1948.



Is it easy to seat securely?

Westinghouse fluorescent lamps are built with "guide bumps" on the end-caps. Easily felt with the fingers during lamp installation, they tell at a touch when the lamp has been securely seated in its sockets.

Is it the correct type, size and color for the lighting job to be done?

In the Westinghouse fluorescent family of 290 different lamps—including Slimline and Rapid Start—there's a type and size precisely right for every office, plant and merchandising application. Colors include seven different shades of "white" alone.

For the full story on how to get more for your money in fluorescent light, contact your Westinghouse Lamp Representative. "You can be sure if it's Westinghouse."

WATCH WESTINGHOUSE

*WHERE **BIG** THINGS ARE HAPPENING FOR **YOU***

Here's VEREL—
Eastman's New Acrylic-Type Fiber

• Tabbed as a "modified acrylic fiber," this latest synthetic is characterized by good color, dyeability, and a relatively high moisture regain. Hand, fire resistance, and resistance to chemicals are good.

Verel—pronounced Ve-REL—is the newest fiber development to come from Tennessee Eastman Co. The fiber is being produced in 2, 3, 5, and 8 den. per filament, with heavier deniers to follow. Current production is semidull luster, but the fiber can be produced in dull or bright form. It will be available in lengths to suit any system of yarn manufacture.

How It Spins

Verel is reported to blend well with cotton, wool, rayon, and acetate. Spinning tests on 100% Verel show that 40s is commercially practical, and 27s to 34s can be spun with 3-den. staple 1½ to 2½ ins. long. Blends of 50% Pima cotton with 50% Verel will produce 68s easily. Viscose staple of 1½ den., 2 ins. long spins well at 34s with 50-50 blends of viscose and Verel. Verel blends with wool to produce fabrics that are stronger than all-wool fabrics.

Bulk-type yarns result from blending stabilized and unstabilized Verel in tows going through the Pacific Converter or Turbo systems.

The new fiber will be offered in stabilized form (not heat-sensitive) and unstabilized form (heat sensitive). Careful blending of the two types will produce predetermined bulk, shrinkage, and resiliency in fabrics made from the blend.

Verel can be wound, warped, and woven by normal methods.

How It Dyes

The new fiber is inherently white but if necessary can be bleached with sodium chlorite and formic acid.

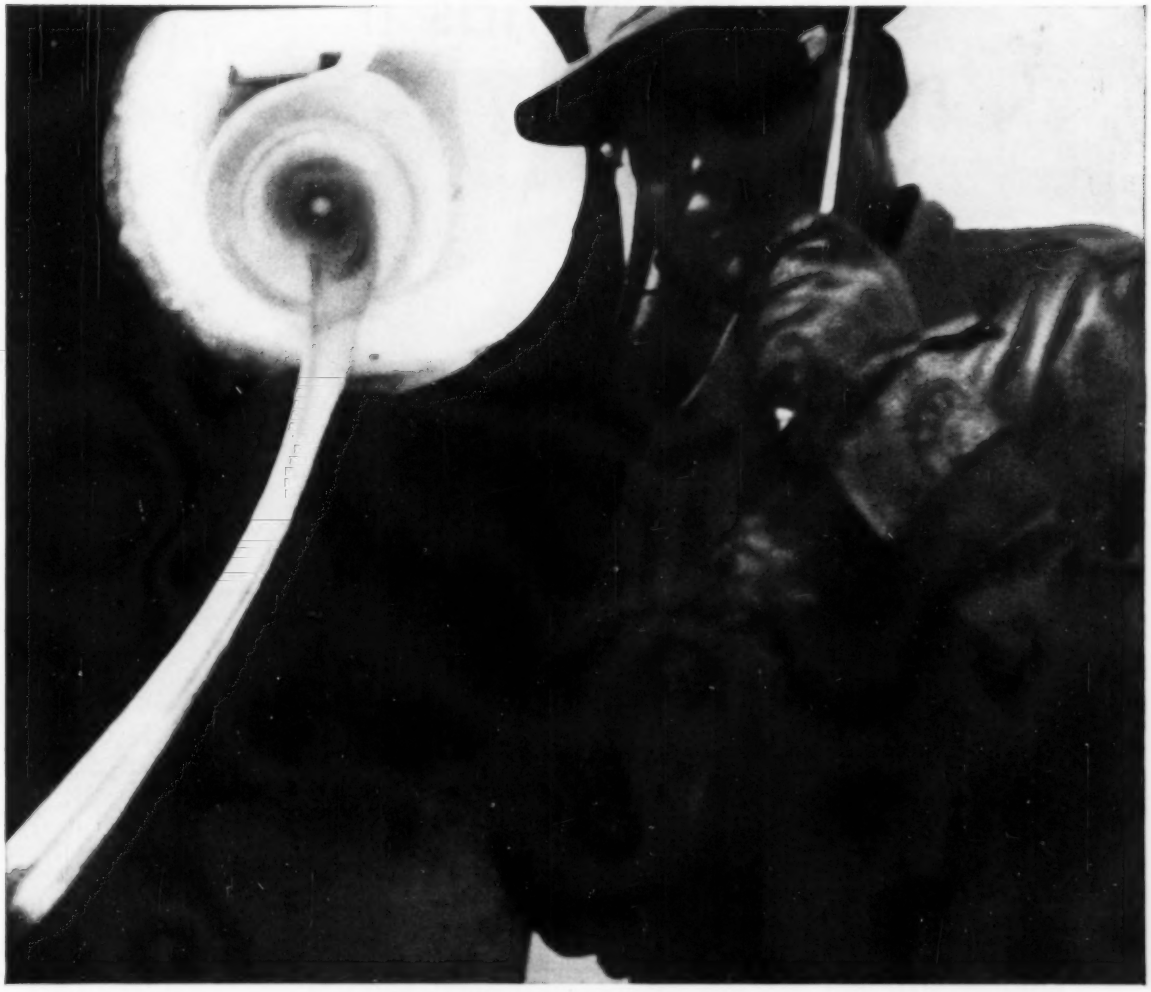
Dyeing can be carried out on stock, skeins, or piece goods. Verel accepts neutral-dyeing, acid, premetallized, dispersed, and some basic or cationic dyes. No special equipment is necessary to get results. The premetallized dyes give excellent fastness to light and washing.

Fabrics made from the new fiber exhibit a soft hand; garments hold their shape well and have good wrinkle recovery. Dimensional stability, flame resistance, and good color point up possibilities in pile fabrics. Blends with cotton, wool, and rayon produce comfortable, stable fabrics of good hand and little tendency toward pilling. Abrasion resistance of Verel is good, and the hand of fabrics made from the new fiber is said to improve with laundering.

Fiber Characteristics of Verel

Tenacity	2.5 to 2.8 grams per denier
Elongation	33 to 35%
Elastic recovery	88% at 4% E 55% at 10% E
Specific gravity	1.37
Moisture regain	3.5 to 4.0%
Wrinkle recovery	Good
Crease retention	Good
Max. ironing temp.	300° F.

how to judge a fluorescent lamp . . . point no. 3



ask about **TAILORED GLASS**

Quality of glass in a fluorescent lamp directly affects lamp performance. For example: if the "surface condition" of the glass is not exactly right, the lamp's light-producing phosphor coating will not stick securely to the inside of the tube, and bare spots will develop. To make *sure* of proper surface condition—as well as high strength, good clarity, precise dimensions and other essential properties—Westinghouse makes all of its own fluorescent lamp glass, tailoring it from silica to finished tubing specifically for fluorescent service. "You can be sure if it's Westinghouse."

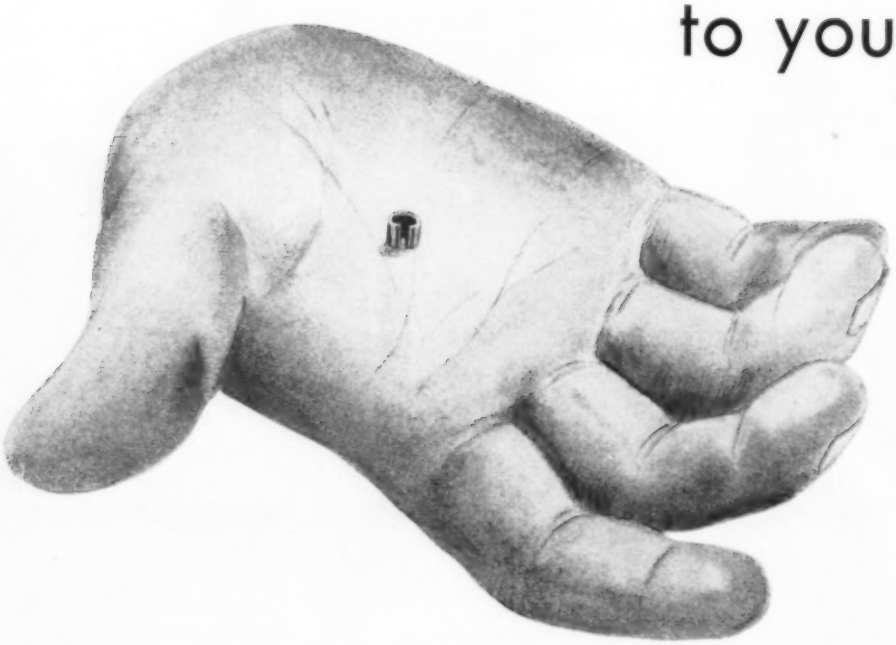
WATCH WESTINGHOUSE

*WHERE **BIG** THINGS ARE HAPPENING FOR **YOU***

For more information, write direct or use Reader-Service post card.

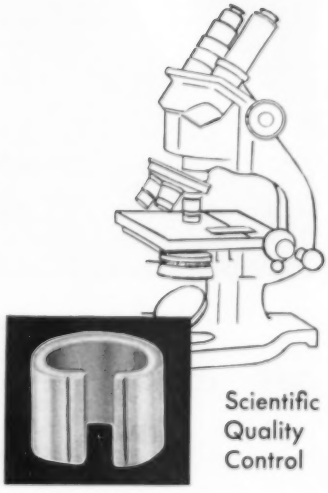
When it comes to Precision,

CARTER hands it to you!



Carter Travelers are precision made . . . precision tested, and they hand you greater profits, through savings. Using Carter Travelers, quality goes up, and production goes up, but costs come down. You'll have less ends down, smoother running work at higher spindle speeds, and stronger, finer yarn.

Metallurgical engineers check every step in manufacturing Carter Travelers, and make precision tests in Carter's modern laboratory, to assure absolute uniformity of weight, temper, shape and the constant high quality of Carter Travelers.



Scientific Quality Control

CARTER TRAVELER COMPANY

Division of A. B. CARTER, INC., GASTONIA, N. C.

Manufacturers of The Boyce Weavers Knotter

REPRESENTATIVES

R. A. Haynes, Special Representative . . . . 114 W. Fifth Ave., Gastonia, N. C.
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D. E. Phillips . . . . 2702 Garden Lakes Blvd., Rome, Georgia
P. L. Piercy . . . . 128 Hudson St., Spartanburg, S. C.
J. R. Richie . . . . 3014 Lewis Farm Road, Raleigh, N. C.
J. K. Davis . . . . P. O. Box No. 129, Auburn, Ala.
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Hugh Williams & Co. . . . . 47 Colborne St., Toronto 1, Canada

For more information, write direct or use Reader-Service post card.

Off Color Yarns
NOT ALLOWED HERE!

Interior of modern Coats & Clark plant—loaded yarn carriers ready for bleaching process. Background: extractor dryers, supplied with super-clean air by AAF Electro-Matics.

Electro-MATICs Supply Super-clean Air for Drying at Coats & Clark Plant

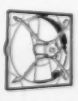
It takes more than just ordinary clean air to protect yarn against discoloration during the drying operation. That's why Coats & Clark, Inc., Toccoa, Georgia, demanded *super-clean* air. And that's why they insisted on AAF Electro-Matic filters.

Electro-Matic eliminates the most minute dust particles. And there's no lowering of efficiency because of dust accumulation. Electro-Matic cleans *itself*, automatically, while it cleans the air . . . provides *maintained efficiency* around the clock, around the calendar.

If your operations demand *constant* super-clean air, then you need AAF's Electro-Matic, today's finest electrostatic air filter. For complete information, call your local AAF representative, or write direct for Bulletin 250.

AAF American Air Filter
COMPANY, INC.
304 Central Avenue, Louisville 8, Kentucky
American Air Filter of Canada, Ltd., Montreal, P. Q.

Herman Nelson Unit Blowers

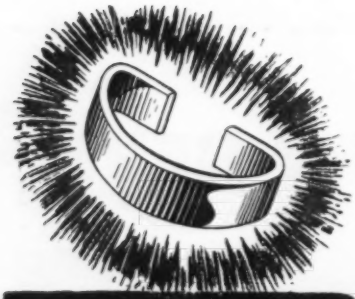


Herman Nelson Propeller Fans

BETTER AIR IS OUR BUSINESS

Illinois Steam Heating Specialties

Air Filters and Precipitators



DARY
Ring Travelers

OUR SPECIALTY!

Our specialty is making Dary ring travelers — an item well and favorably known to the textile trade for more than half a century. Though times change, we at Dary hold to one course without deviation. We continue to serve, by pursuing our specialty.

When you need ring travelers, call on our experience to aid your choice. Consult your friendly Dary representative!

Always specify
DARY Ring Travelers

THE DARY RING TRAVELER CO.
TAUNTON, MASSACHUSETTS
LINDSEY I. PHILLIPS, TREASURER, TAUNTON, MASS.
JOHN H. O'NEILL, BOX 720, ATLANTA, GA.
JAMES H. CARVER, BOX 22, RUTHERFORDTON, N. C.
CRAWFORD JACK RHYMER, BOX 2261, GREENVILLE, S.C.

MILL MAINTENANCE

How To Handle Lubricants for Best Mill Results

At one time, practically every machine in a textile mill was lubricated with one kind of engine oil. Today's specialized machinery requires special lubricants. Then, too, many of the machines and motors operate at high speeds for weeks at a time without stopping. The services of a good lubrication engineer or many months of experimentation on the job are necessary to find just the right lubricant for every application.

When the lubricants are selected, the average mill will find that from six to a dozen, or even more, different types and viscosities of lubricants will be needed. With so many kinds of lubricants in use, the procurement, storage, handling, and dispensing become a problem.

It is necessary to have enough storage area, to keep accurate inventory, and to have the lubricants readily available. To the average employee, oil is oil and grease is grease—and that's about all he knows about lubricants. If the oil or grease he normally uses is not at hand, he will use a substitute. Or he will use the fact that the lubricant is not readily available as an excuse to skip the lubricating chore altogether.

Avoid Extreme Temperatures

Some lubricants are adversely affected by subfreezing temperatures. Freezing will cause the components to become separated, and all lubricants become stiff and hard to handle at low temperatures. On the other hand, extremely hot weather or heated storage areas will sometimes cause the lubricants to thicken or jell. Drums or dispensers that are open to air permit some of the components to evaporate and render the lubricant useless. Also, such open containers expose the contents to the elements and the lubricant may become contaminated.

To insure correct lubrication of machinery, the recommended products should be kept on hand in sufficient quantities. To avoid guesswork, it is necessary to have an inventory that is realistically based on normal requirements. In most instances, lubricants are readily available from the supplier on short notice and a large backlog is unnecessary. However, all lubricants should be readily accessible, positively identified, and easily handled.

Bought in 55-Gal. Drums

Most textile lubricants are obtained in 55-gal. drums. The standard size of this drum is 24-in. outside diameter and a height of 34¾ ins. An empty drum weighs about 50 pounds. The drums may be stored in upright position or horizontally.

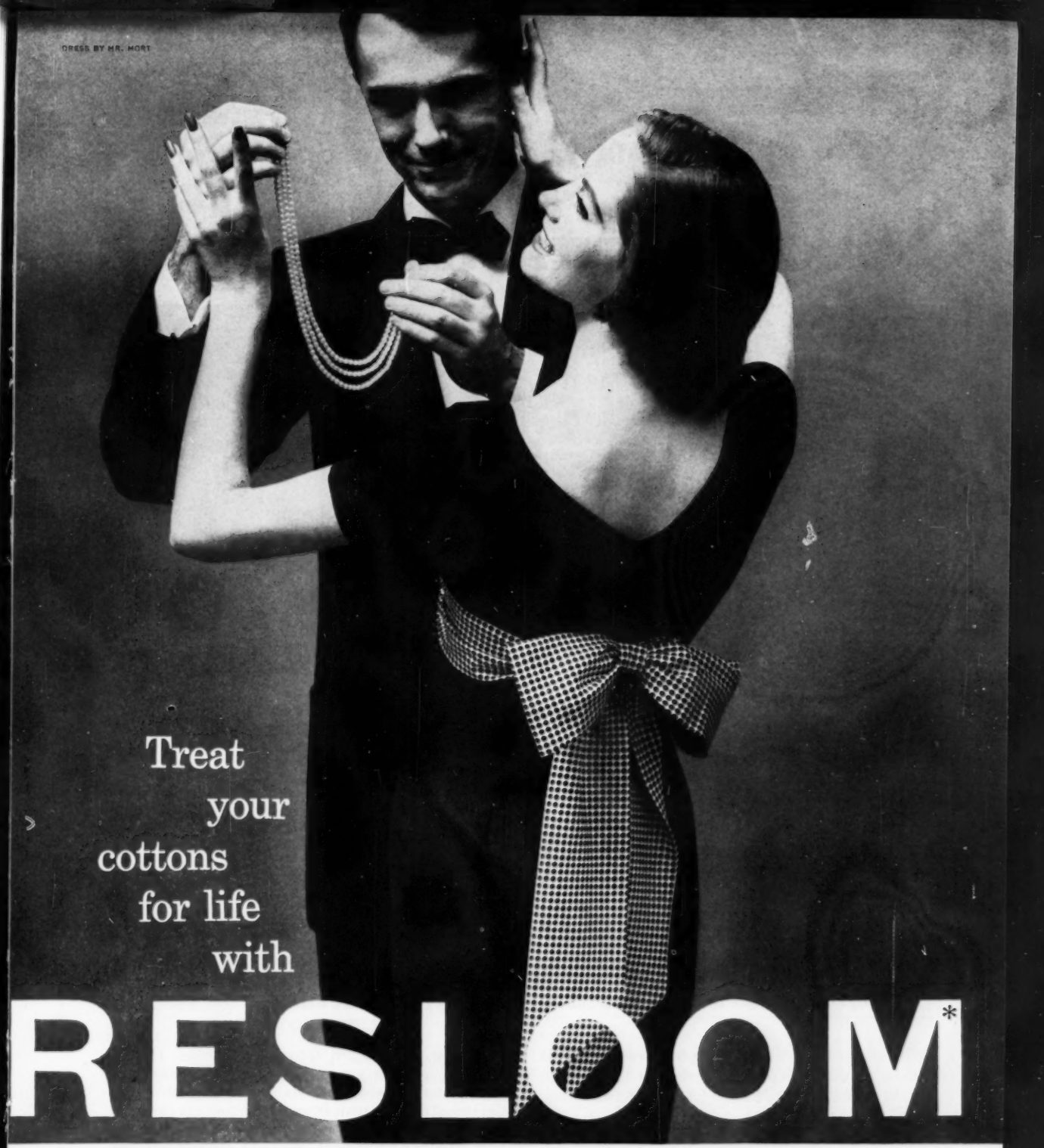
Two rolling hoops are cast in the drum to strengthen it. The hoops also make loading on racks or trucks easier, and they provide a surface to facilitate rolling the drum upon the floor or platform. Where lift trucks are used, it is well to store the drums on pallets for easy handling.

Since most textile lubricants are delivered in returnable drums, it is well to have a place to keep the empty drums. Also, someone should be responsible for seeing that they are returned promptly. A sizable sum of money can be tied up or lost in credits or cash deposits on these drums.

Whenever possible, both empty and filled drums should be stored indoors or at least under a roof to protect them from inclement weather.

All lubricants should be readily identifiable from storage area until actual application to machinery. Drums of different colors afford some identification, but some people are color blind. Stenciling words or figures on the drums that correspond to like markings on dispensers is probably the best method. When a drum is partially emptied, it should be sealed airtight and watertight to prevent adulteration and evaporation.

CONTINUED ON PAGE 220



Monsanto cyclic urea resin, RESLOOM E-50, modifies fibers... does not wash out!

MONSANTO

*RESLOOM: REG. U. S. PAT. OFF.

Remarkable performance is reported for cottons treated with Monsanto cyclic urea resin. Resloom E-50 produces long lasting finishes that require little or no ironing.

After repeated laundering, the treated fabrics also demonstrate outstanding crush resistance and dimensional stability.

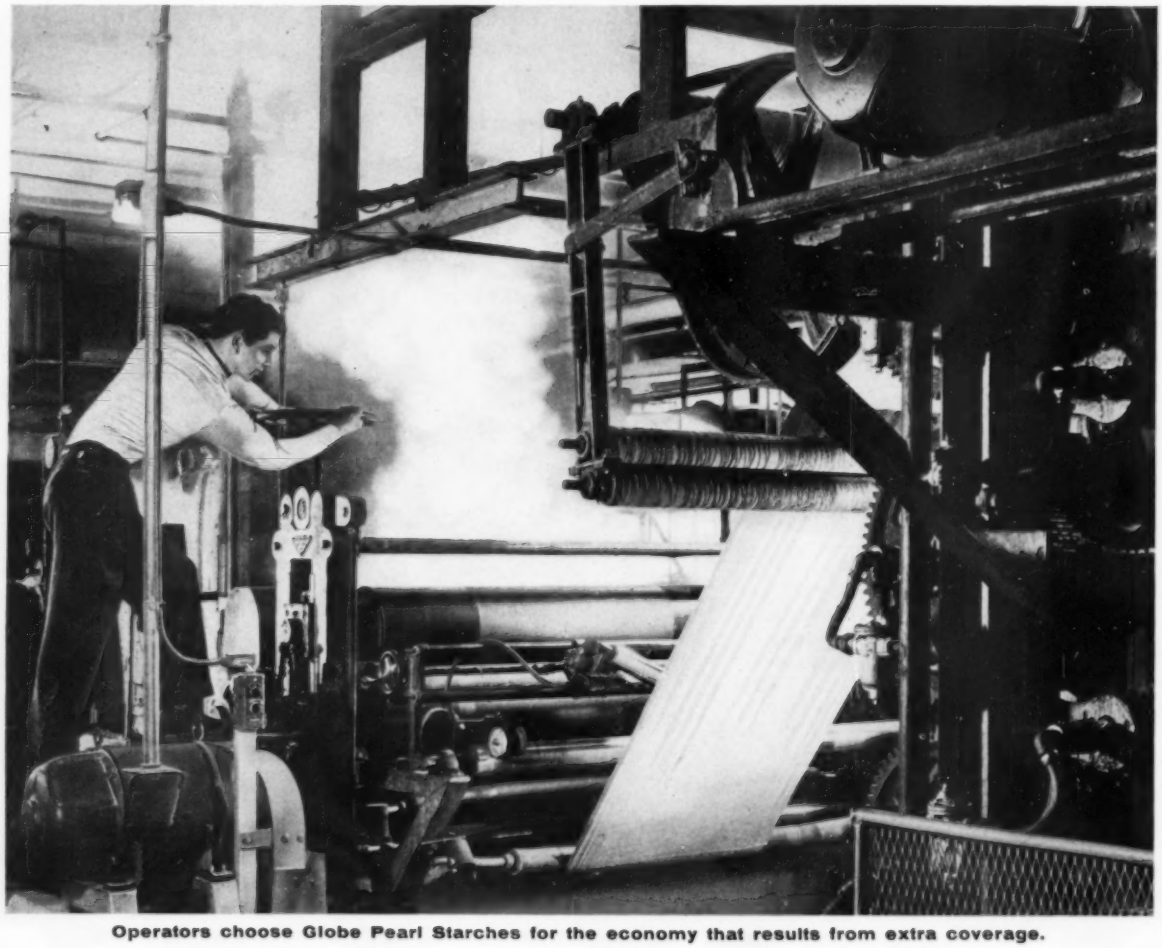
Unlike most other thermosetting resins, Resloom E-50 is designed to react exclusively with the fabric rather than with itself. Its active ingredients diffuse into the interior of cellulosic fibers and actually modify fiber characteristics.

Call in Monsanto for expert counsel on how to "treat your cottons for life." In addition to Resloom E-50, Monsanto also supplies melamine finishing resins, tradenamed Resloom HP and M-75, as well as Catalyst AC for stepping up curing efficiency. Write for technical bulletin and experimental samples. Monsanto Chemical Company, Plastics Division, Room 1050, Springfield 2, Mass.

Textile Notes on Corn Products

For economy in your finishing operation use a

GLOBE® PEARL STARCH



Operators choose Globe Pearl Starches for the economy that results from extra coverage.

Whether for the thick starch paste necessary in back filling, the carrier in printing or the starch for mangle work, there is a Globe Starch just right for the work.

These thick-boiling starches provide the extra coverage that means more economical production. Pastes and sizes made from Globe Pearl resist the effects of pumping and cooking without losing viscosity.

Consistently reliable, Globe Pearl Starches are uniform. Their ready availability have made them the favorite choice of many mills.

Ask the man from Corn Products. Ready to assist you in any way, he has at his disposal the most complete laboratory and technical facilities in the industry. The man from Corn Products can also provide engineering service for the installation of bulk-handling equipment. Write or phone for information, there is no obligation.

1906 • **50th ANNIVERSARY** • 1956
CORN PRODUCTS REFINING COMPANY
17 Battery Place, New York 4, N. Y.

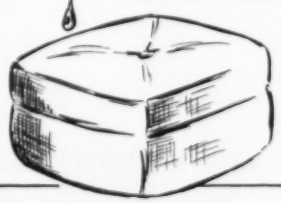
Corn Products makes these famous starches for the textile industry—
Eagle • Foxhead • Globe • Hercules • Ten-O-Film • Globe Dextrines & Gums

Don't Junk

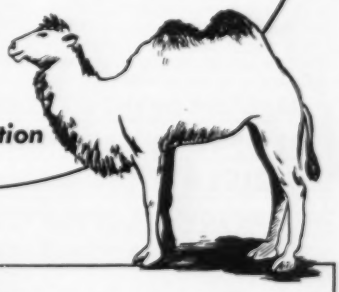
Worn Top Rolls

Your worn top rolls can be the basis for the best and longest wearing rolls you ever used. If you are skeptical about our "better-than-new" claims for Ideal Specialloy Reconditioned Top Rolls, here are some things we can prove.

Ideal Specialloy surfaces have a cushioning action . . . tough—but oh so gentle . . . on saddles and cap bars.

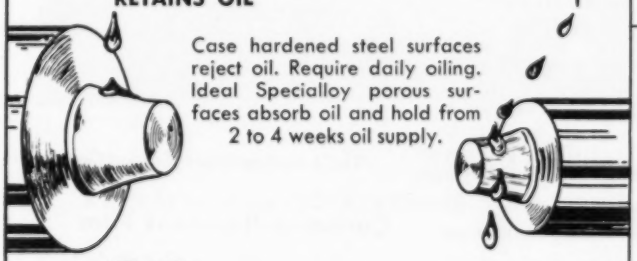


Goes Weeks Without Attention



RETAINS OIL

Case hardened steel surfaces reject oil. Require daily oiling. Ideal Specialloy porous surfaces absorb oil and hold from 2 to 4 weeks oil supply.



SPECIALLOY SAVES MONEY

Specialloy Reconditioning means longer life for top roll assemblies, less oiling labor, and sharply reduced seconds . . . a worthwhile net saving to you.

NO OIL SPOTS

The oil stays on the Specialloy bearing parts and off of the yarn. Oil seconds are practically eliminated.

Don't junk your worn top rolls. Let us show you why Specialloy Reconditioning will give you the best top rolls obtainable. Let us recondition a half dozen of your worn rolls to prove our claims.

Ideal Machine Shops, Inc.

Bessemer City, N. C.

Continuous Service to Textile Mills Since 1924

LUBRIPLATE IS THE IDEAL LUBRICANT

—say leading
Textile Manufacturers

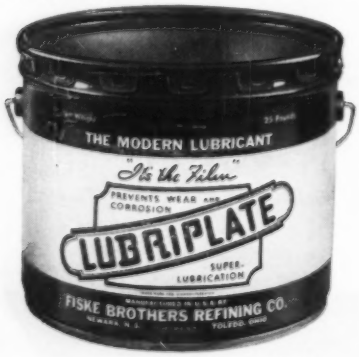
LUBRIPLATE Lubricants have won acceptance in the textile industry because even with speeds up to 25,000 R.P.M., they have exceedingly long life and do not break down. LUBRIPLATE Lubricants range from the lightest oils to the heaviest greases to meet every requirement of the textile industry.

REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE

LUBRIPLATE LUBRICATION MAKES CARS AND TRUCKS RUN BETTER AND LAST LONGER

LUBRIPLATE H.D.S. MOTOR OIL . . . THE OIL THAT NEEDS NO ADDITIVES

For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK" . . . a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.



MILL MAINTENANCE

CONTINUED FROM PAGE 216

Fire and Safety Hazard

The lubrication-dispensing area within the mill should be centrally located. Only enough drums for immediate use should be kept in this area, and all empty drums should be promptly removed.

Even with the best of management, lubricants are inherently messy; and careless handling can create a deplorable condition. The area should be kept as clean as possible, with all spilled or dropped lubricants mopped up promptly.

Besides being unsightly, spilled lubricants are a definite safety hazard. Although most lubricants are not highly flammable, they do present a fire hazard, especially when floors, cleaning rags, and rubbish become saturated. Adequate fire protection should be provided in lubricant storage or dispensing areas.

Since the selection of lubricants is a local problem, governed by the many variables found in different mills, the procurement, storage, and dispensing of the lubricants must be planned to fit the local situation. However, some careful planning, and effective execution of the plans, will have worth-while results. Many times an efficient system of handling lubricants will pay off in better-lubricated machinery; savings in labor, containers, and lubricants; and more-orderly housekeeping and safer working conditions.

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 210

Co., 72 Disney St., Cincinnati, Ohio. Made for 4-in. I-beams of overhead trolley conveying systems, the wheels are lubricated with grease and are sealed against dirt.

Circle T-32 on Reader-Service Card

Strain-Gauge Indicator

The SL-1002, a precision servo-driven indicator for measuring the output of conventional strain gauges, is available from Industrial Control Co., Wyandanch, L. I., N. Y. The unit, completely self-contained, consists of an indicator, servo amplifier, and control box.

Circle T-33 on Reader-Service Card

Tape Dispenser

A portable tape dispenser, Model H-125, designed for making splicing and laminating jobs with double-coated tapes easier, has been announced by Minnesota Mining & Mfg. Co., Dept. J5-306, St. Paul, Minn. Price of the unit is $25.

Circle T-34 on Reader-Service Card

Valve Actuator

A self-contained electro-hydraulic valve actuator that increases the advantages of electronic control systems has been developed by Askania Regulator Co., 240 E. Ontario St., Chicago 11, Ill. The unit contains a control valve, hydraulic-power source, and proportioning positioning mechanism that can be used with existing electronic controllers.

Circle T-35 on Reader-Service Card

Remote-Control TV System

A closed-circuit television system developed by Dage Television Div., Thompson Products, Inc., Michigan City, Ind., allows quick and accurate viewing of widely spaced objectives. Here's one way to sit in your office and see what's going on in the mill. Price: approximately $3,550.

Circle T-36 on Reader-Service Card

Corrosion-Resistant Film

A thin, translucent film made from fluorothene resins has been announced by W. S. Shamban & Co., Culver City, Calif. Tough and flexible, the film withstands highly corrosive chemicals such as fuming nitric acid.

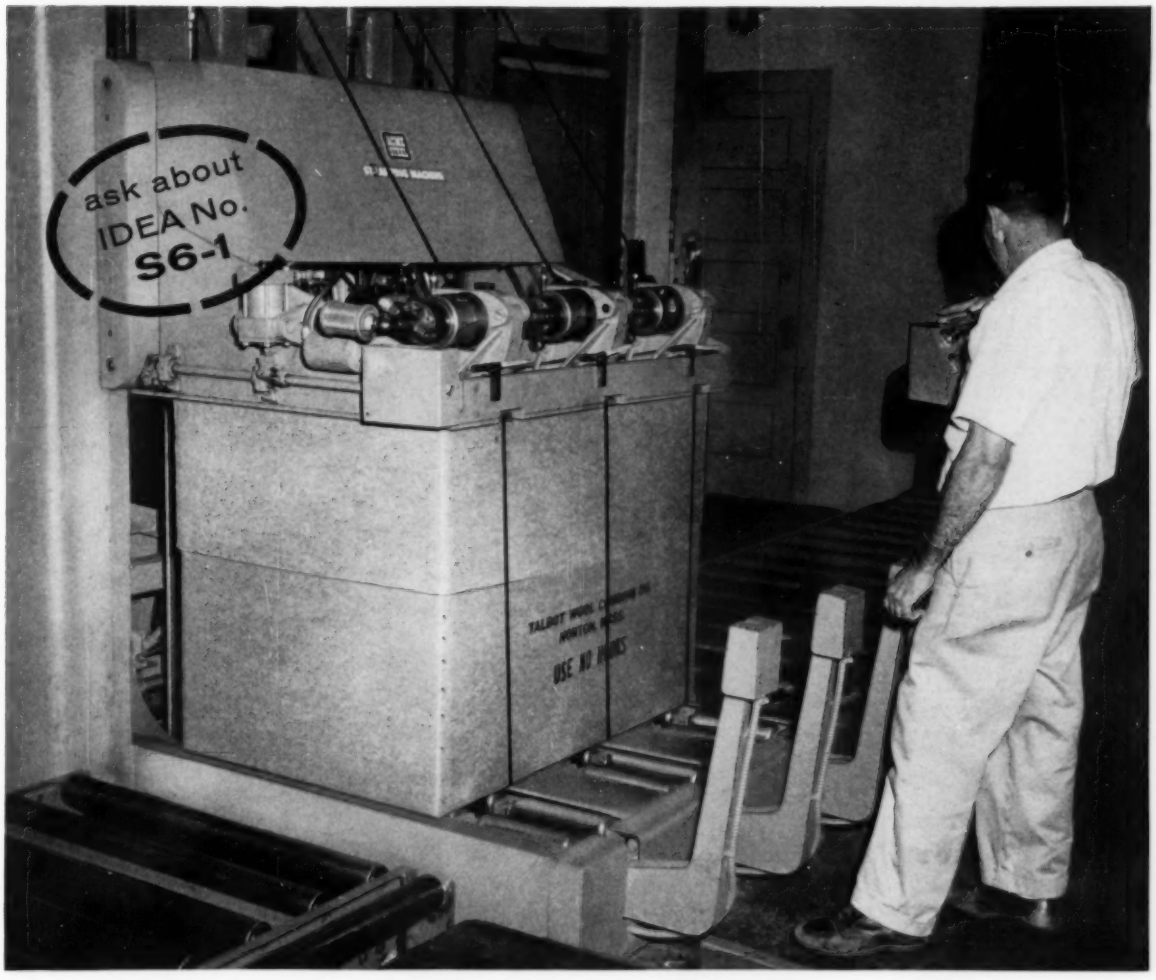
Circle T-37 on Reader-Service Card

Speed-Change Indicator

A speed-change sensing system for precision automatic speed-control equipment is available from Weston Electrical Instrument Corp., 614 Frelinghuysen Ave., Newark 5, N. J. The unit can be used at any speed up to 80,000 rpm. A tachometer is provided for continuous speed indication.

Circle T-38 on Reader-Service Card

CONTINUED ON PAGE 224



Check your AIM*. . .Talbot Wool Combing did . . .

Textiles packaged for fast, clean, efficient shipping

THIS ACME STEEL STRAPPING MACHINE in one operation compresses, tensions, seals and cuts one, two or three straps on varying sizes of cartons of wool tops at Talbot Wool Combing Co., Norton, Mass. (Idea No. S6-1).

Unlike the burlap wrapped bales which were formerly used, strapped cartons protect wool from dirt, are neat and uniform in appearance and store efficiently in warehouse areas before and after shipping. Strapping also reinforces against damage.

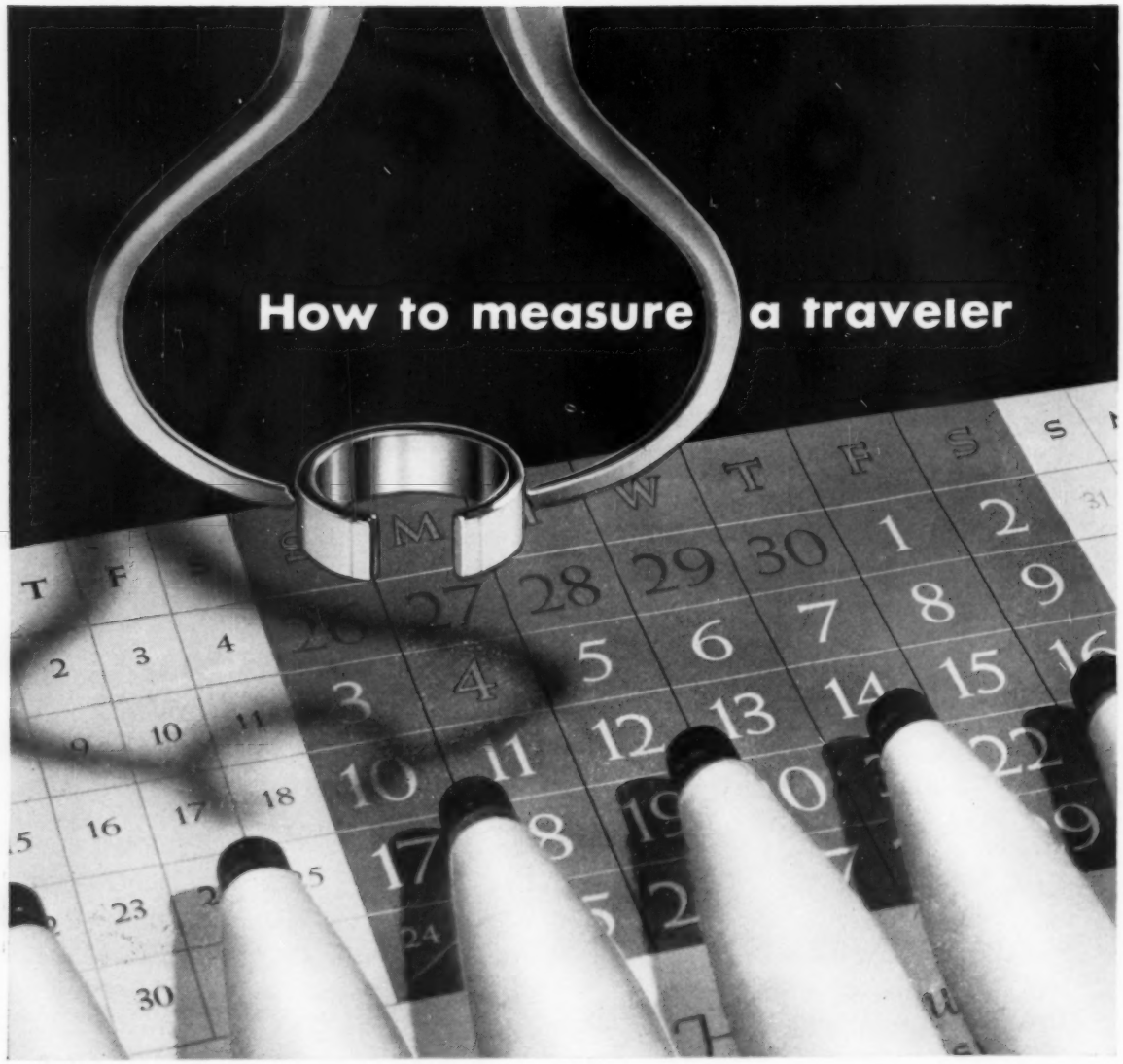
***Check YOUR Acme Idea Man today.** His valuable training and experience can help you apply the many benefits of Acme Steel Strapping and equipment to your operation. Write to Dept. EE-56, Acme Steel Products Division, Acme Steel Company, 2840 Archer Avenue, Chicago 8, Illinois

TALBOT WOOL COMBING CO.

*Acme Idea Man C. E. Smith helped introduce the F-3 strapping machine to Talbot Wool Combing Co.

ACME STEEL STRAPPING

ACME STEEL



Measure a traveler by days of trouble-free service, and by pounds of first-quality yarn delivered. Travelers vary widely by this test, even though they *look* alike and meet dimensional specifications.

Under *any* conditions, you can be sure of maximum production per traveler when you rely on Victor experience and quality control.

That's the reason why Victor Travelers are chosen for over 12,000,000 spindles. Mill men everywhere find that Victor quality pays off, consistently, in longer traveler life . . . with fewer ends down . . . at higher spinning and twisting speeds.

A Victor Service Engineer will help you select Travelers that measure up to maximum production on any yarn you are running. Write, wire, or phone for prompt service.

Keep a Step ahead with

VICTOR Ring Travelers

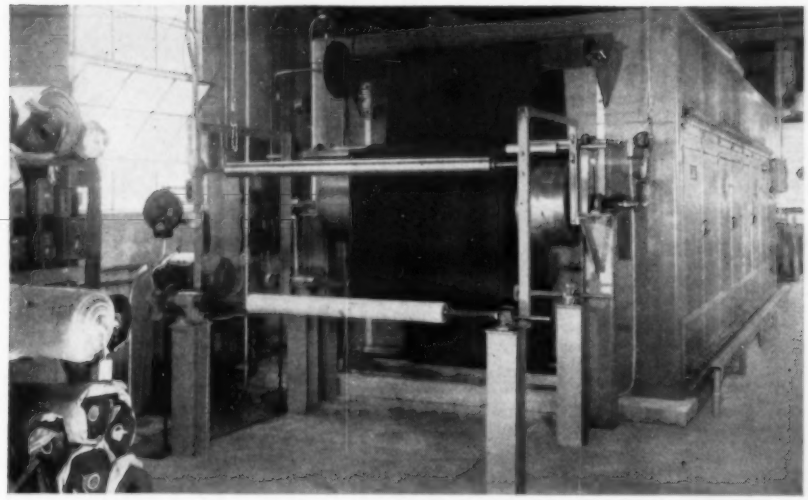
VICTOR RING TRAVELER COMPANY

PROVIDENCE, R. I. . . . 20 Mathewson Street . . . . . Tel. DExter 1-0737

GASTONIA, N. C. . . . . 914-916 East Franklin Ave. . . . Tel. UNiversity 5-0891

THE NEW Proctor ROLLER CURER

gives 35% higher cures . . .
Doubles Production at Oxford



The installation of a new Proctor Roller Curer together with rearrangement of existing facilities, has enabled the Oxford Textile Finishing Company, Oxford, N.J., to increase production from 50,000 to 105,000 yards per day. At Oxford, the new curer achieves 85 to 95% cures.

through . . .

UNIFORMITY OF CURING

•

CONTINUOUS RANGE OPERATION

•

CONTROL OF FABRIC TENSION WHILE RUNNING

•

ELIMINATION OF RERUNS

NEW DESIGN FEATURES

New Proctor XX construction reduces installation costs, provides efficient, air tight and well insulated housing—smooth, easy to clean surfaces. Uniform air distribution promotes uniform curing without shading. Variable speed motors power each alternate top roller.

Tension can be adjusted from minimum to maximum while the machine is in operation according to the requirements of the fabric being cured.

Unique roll drive permits Roller Curer being placed in range operation with no change in present drive arrangement.

To find out about the complete "Oxford Story" as well as the advantages of a Proctor Roller Curer in your mill, write for latest information bulletin #412.

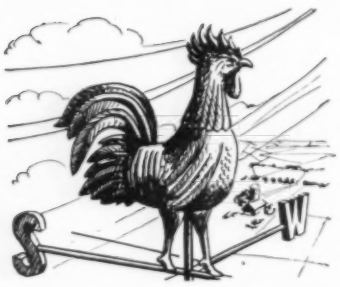
PROCTOR EQUIPMENT FOR THE TEXTILE FIELD

AUTOMATIC BLENDING SYSTEMS • WEIGHING FEEDS • PICKERS • SHREDDERS • BALE BREAKERS • SYNTHETIC CARDS • GARNETTS • DRYERS FOR FIBROUS MATERIAL • YARN DRYERS • HOT AIR SLASHER DRYERS • CLOTH CARBONIZERS • ROLLER DRYERS AND CURERS • LOOP AGERS FOR PRINT GOODS • TENTER HOUSINGS • OPEN-WIDTH BLEACH SYSTEMS FOR WOVEN FABRICS • MULTIPASS AIRLAY DRYERS • NYLON SETTING EQUIPMENT • CON-O-MATIC WASHERS • CONTINUOUS BLEACH SYSTEMS FOR TUBULAR KNITS • EQUIPMENT FOR PRODUCING "REDMANIZED"® SHRUNK-TO-FIT FABRICS • CARPET DRYERS

Proctor **PROCTOR & SCHWARTZ, INC.**

Philadelphia 20, Pa.

Manufacturers of Textile Machinery and Industrial Drying Equipment



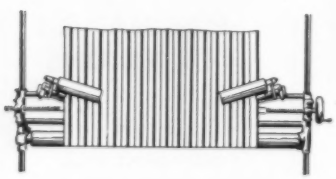
WORLD-FAMOUS **GUIDER . . . the weathervane has dependably guided man's activities for centuries**

WORLD-FAMOUS, **too . . . in textile manufacturing is the ever-dependable**

MECHO AIR GUIDER

FAMOUS FOR SAVING HUNDREDS AND HUNDREDS OF DOLLARS YEARLY BY

- **minimizing costly equipment repair "down-time"**
- **eliminating double edges and spattering**
- **speeding fabric processing**
- **preventing woven fabric spoilage**
- **maintaining cloth alignment and constant width**



Add to all the above advantages: no weights, levers, nor linkages to bother with, extremely low initial and operating costs, infinite adjustability to handle fabrics from the lightest to #8 duck, even in operation . . . then you'll understand why MECHO is considered the greatest buy in Guiders! *ORDER yours TO-DAY.* You'll wonder how you ever got along without it.

FREE! Write for Catalog and ask about MECHO's complete Guiding Service, standard in hundreds of finishing plants handling semi-rigid plastics, artificial leather and rubber, felt, and gauze. Stainless steel, acid- and moisture-resistant units with sealed bearings also available.

GUIDER **SPECIALTY COMPANY**
427 W. Rock Ave.,
New Haven 15, Conn.

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 220

Rubber-Drum Tilter

A tilting device designed especially for rubber drums has been produced by Nutting Truck & Caster Co., 1201 W. Division St., Faribault, Minn. The standard model handles 13-gal. drums. Other models are available for larger drums.

Circle T-39 on Reader-Service Card

Steel Storage Racks

Thirty case fronts can be shown in every 7-ft. section of warehouse area with a new system of racks developed by Artco Corp., Flourtown, Pa. The racks are composed of interlocking end frames, adjustable stringers, and inclined runners. As one case is removed from the rack, a second case slides automatically to the front for ready picking of subsequent orders. All feeding is done from the rear of the racks to eliminate interruption of stock rotation.

Circle T-40 on Reader-Service Card

Small Gear Motors

A line of small gear motors announced by Doerr Electric Corp., Cedarburg, Wis., utilizes motors made in the NEMA 42 frame and is offered in 1/20- and 1¼-hp. ratings. The gear motors are made in eight standard ratios in the range from 5 to 1 to 60 to 1. Motors can be split-phase, capacitor start-induction run, capacitor start-capacitor run, or polyphase. Both open and totally enclosed constructions are made.

Circle T-41 on Reader-Service Card

Brake Built Into Motor

An electric-motor brake, built into the motor housing, has been announced by Cleveland Electric Motor Co., 5213 Chester Ave., Cleveland 3, Ohio. The brake is mechanical in action, and solenoids and coils are eliminated. The brake can be adjusted for rapid or slow stops. The brake stops gently and allows smooth, easy acceleration from standstill to full load. Inching starts are also possible. The brake design eliminates costly maintenance.

Circle T-42 on Reader-Service Card

Accepted Procedure . . .

against **Athlete's foot** with modern DOLGE Fungicides

DUSTING Alta-Co Foot Powder on the feet and inside shoes

FOOT BATH Alta-Co Powder dissolved in water for group prophylaxis

FLOOR WASH H.D. Fungicide diluted in 300 parts water—mop on floor

Write for Booklet on Athlete's Foot Control

Dependable DOLGE WESTPORT, CONNECTICUT

McGraw-Hill Mailing Lists Will Help You

- **Merchandise your advertising**
- **Conduct surveys**
- **Get inquiries and leads for your salesmen**
- **Pin-point geographical or functional groups**
- **Sell direct**
- **Build up weak territories**
- **Aid dealer relations**

Direct Mail is a necessary supplement to a well rounded Business Paper advertising program.

Most progressive companies allocate a portion of their ad budgets to this second medium at the same time as they concentrate on the best business publications.

600,000 of the top buying influences in the fields covered by the McGraw-Hill publications make up our 150 mailing lists. Pick YOUR prospects out of our Industrial Direct Mail catalogue.

Write for your free copy.
It contains complete information.

☆ ORLON ☆ NYLON ☆ ACRILAN ☆ DYNEL ☆

DEEP PILE IS BIG BUSINESS

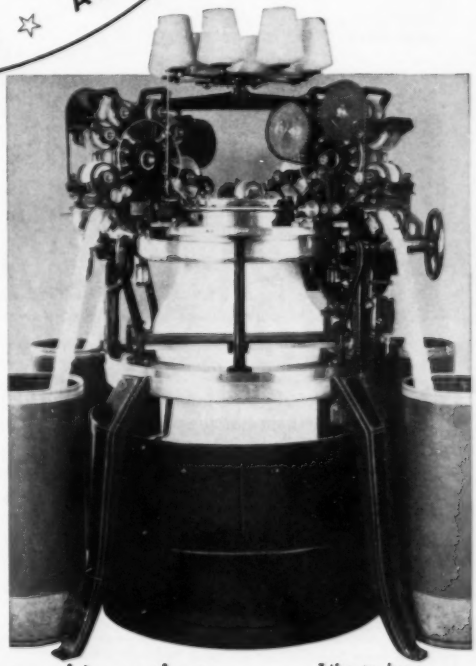
☆ COMBINATION WITH NATURAL FIBERS ☆ ALL SYNTHETIC FIBERS ☆

From season to season . . . year to year, these lustrous, deep, lush, kitten-soft, fur-like fabrics are getting the nod from style-wise American women in greater and greater numbers.

And womens' style centers are receiving the benefit in prestige and profits. This is a "must market" and a rapidly expanding one. Get your share with a battery of

WILDMAN HIGH PILE FABRIC KNITTING MACHINES—TAKING ANY TYPE AND SIZE OF STAPLE—

in all synthetics, separately or mixed, or in combination with natural fibers. The advantages built into these modern knitters are all in your favor — dependable, all day, trouble-free production with assured uniformity yard for yard.

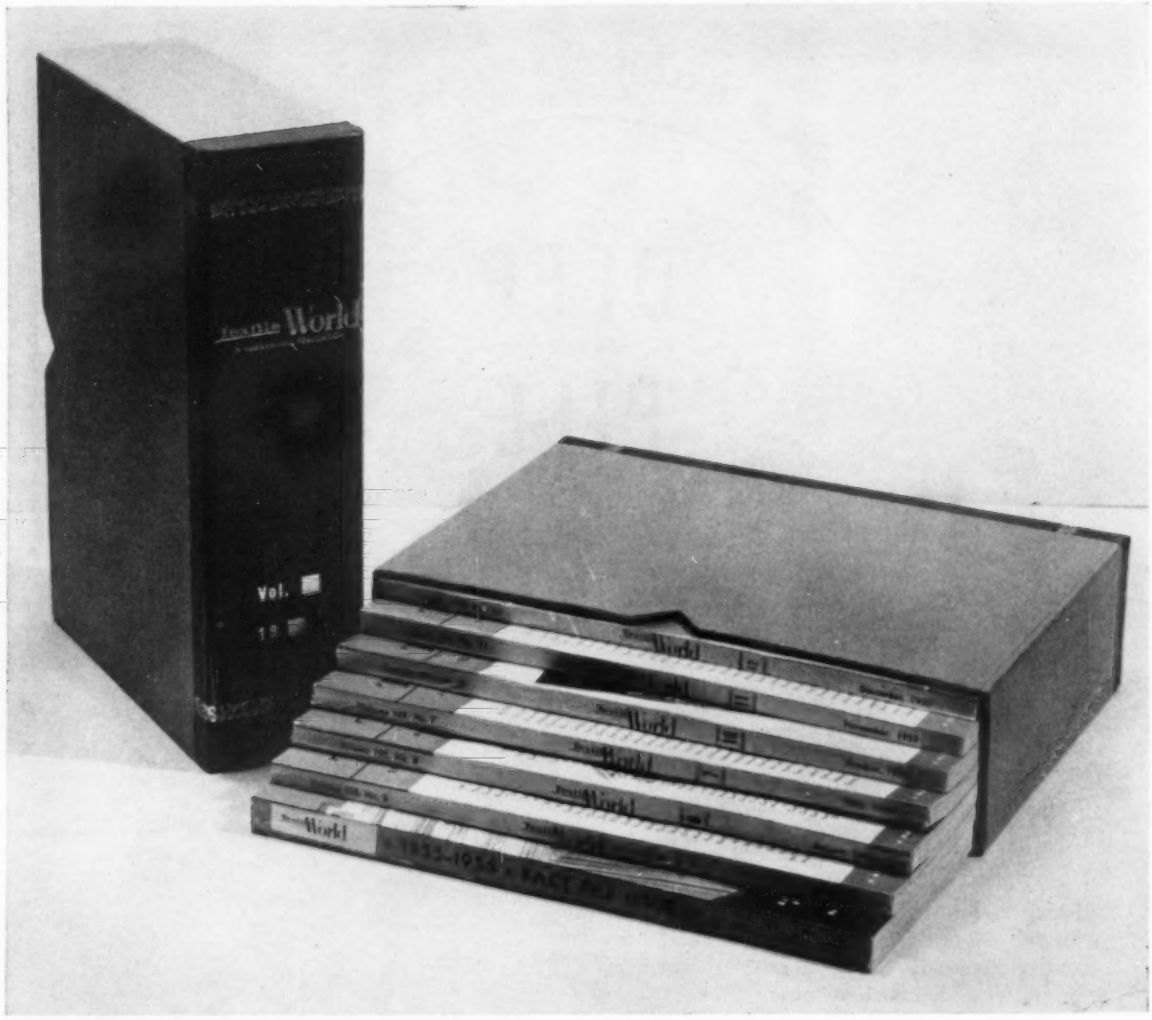


WILDMAN *makes the machines that tend to their own knitting.*

WILDMAN MFG. COMPANY, NORRISTOWN, PA.

Like to have complete technical details and demonstration?

Manufacturers of: **FULL FASHIONED HOSIERY MACHINES; CIRCULAR MACHINES FOR OUTERWEAR, UNDERWEAR, SPORTSWEAR, TRIMMINGS; STOP MOTIONS**



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A complete set of past issues of TEXTILE WORLD represents the finest source of technical information on textile manufacturing to be found anywhere. Every issue contains information designed to help the man in the mill with his job.

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These durable Jesse Jones files (will support 50 lbs.) come with a rich Kivar cover that is washable and that looks like leather. The 16-carat gold lettering makes them fit companions for the most costly bindings.

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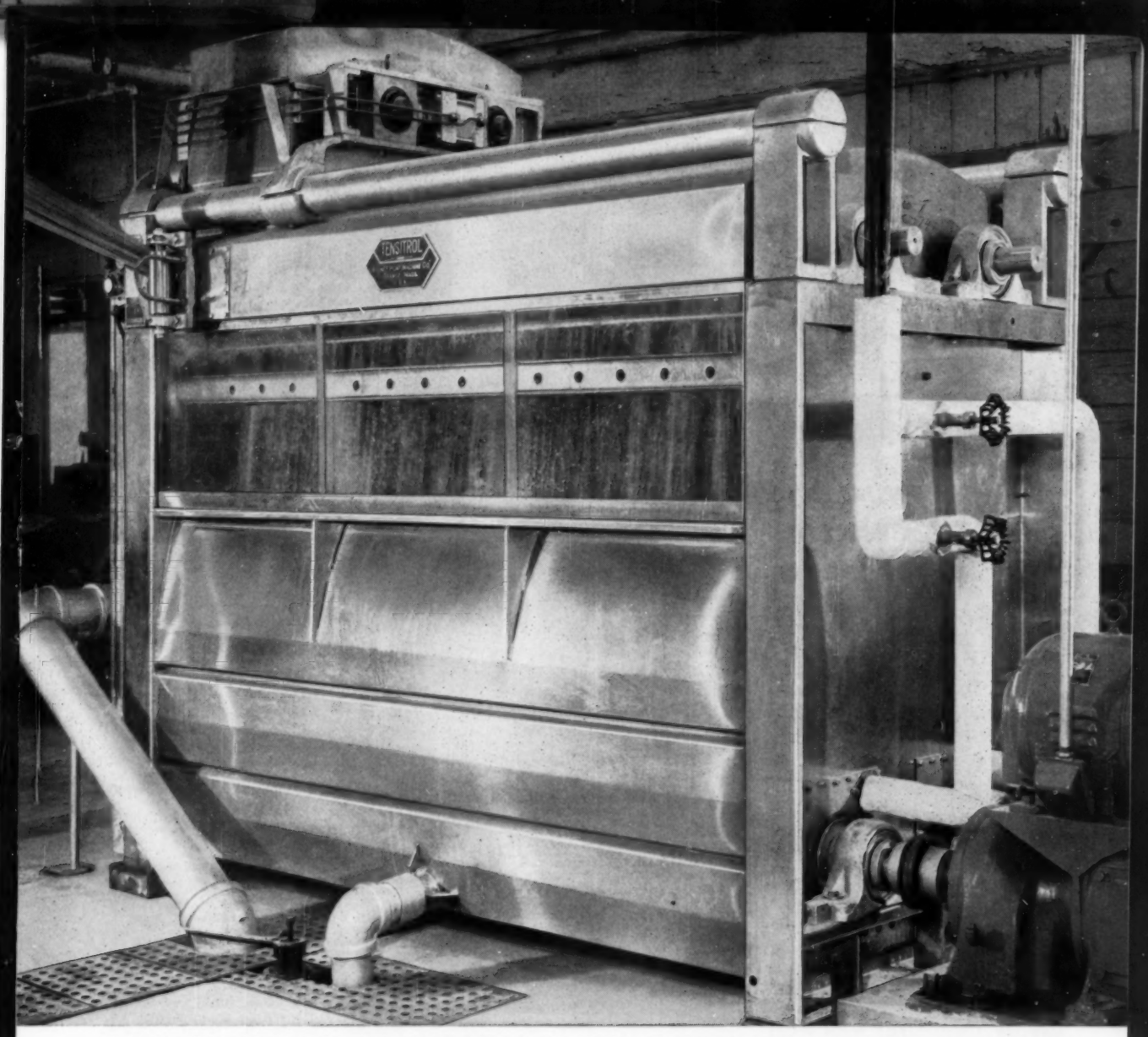

The Stainless Steel washer shown here was manufactured by Rodney Hunt Machine Co., Orange, Mass.

Stainless Steel Washer Cuts Maintenance by 90%

This Southern textile mill used to have a wooden washer to handle cloth coming from the mercerizer. The wood would rot and leak, and the entire machine required constant repair.

When the Stainless Steel rope washer was installed, maintenance costs were reduced 90%. In fact, all through this mill, in dye beams, dye kiers, slasher units, sizing and starch boxes, dye padders, agers and washers, *Stainless Steel has paid for itself* over and over again.

In the words of the Supervisor of the Dye Department, "Only through the use of Stainless Steel can we compete to produce improved products."

Always consider Stainless Steel when you need new equipment. Always specify USS Stainless Steel to be sure of service-tested quality.

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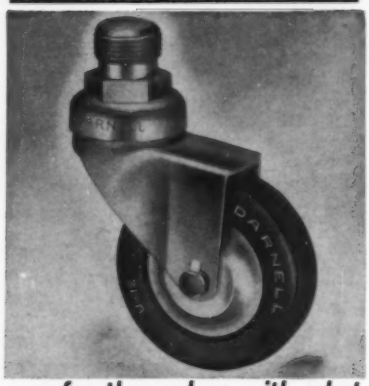

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All types of rubber treads—soft, medium and hard—for smooth operation on all kinds of floors. Featuring Neoprene rubber treads - resistant to oxidation, oils and waxes as well as being unaffected by most chemicals - expertly compounded to Darnell standards.

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CALENDAR

May

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., May 2.

The Fiber Society, spring meeting, The Clemson House, Clemson, S. C., May 2 and 3.

National Assn. of Wool Manufacturers, annual meeting, Waldorf-Astoria Hotel, New York, N. Y., May 3.

Southern Textile Assn., Piedmont Div., Hickory Hotel, Hickory, N. C., May 5.

AATCC, Midwest Sect., Plankington Hotel, Milwaukee, Wis., May 5.

AATCC, Western New England Sect., Waverly Inn, Cheshire, Conn., May 11.

AATCC, New York Sect., Kohler's Swiss Chalet, Rochelle Park, N. J., May 18.

National Association of Woolen & Worsted Overseers, semiannual convention, Hotel Bancroft, Worcester, Mass., May 18 & 19.

Southeastern International Industrial Exposition, Lakewood Park, Atlanta, Ga., May 18 to 25.

Tufted Textile Manufacturers Association, annual meeting, The Fontainbleau, Miami Beach, Fla., May 31 to June 2.

South Carolina Textile Mfrs. Assn., The Cloister, Sea Island, Ga., May 31 to June 2.

June

Materials Handling Institute Exposition of 1956, Public Auditorium, Cleveland, Ohio, June 5 to 8.

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., June 6.

National Association of Hosiery Manufacturers and Hosiery Industry Conference, annual meeting, Hotel Roanoke, Roanoke, Va., June 14 to 16.

Southern Textile Association, annual convention, Mayview Manor and Green Park Hotel, Blowing Rock, N. C., June 21 to 23.

July

Gordon Research Conference on Textiles, Colby Junior College, New London, N. H., July 9 to 13.

August

Textile Technology Summer Program, Massachusetts Institute of Technology, Cambridge, Mass., August 20 to 31.

September

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., Sept. 5.

The Fiber Society, fall meeting, Warwick Hotel, New York, N. Y., Sept. 6 & 7.

AATCC, national convention, Waldorf-Astoria Hotel, New York, N. Y., Sept. 10 to 12.

Combed Yarn Spinners Association, Cavalier Hotel, Virginia Beach, Va., Sept. 27 & 28.

National Association of Cotton Manufacturers, annual meeting, Wentworth-By-The-Sea, Portsmouth, N. H., Sept. 27 & 28.

Northern Textile Association, 4th Annual Meeting, Wentworth-By-The-Sea, Portsmouth, N. H., Sept. 27 & 28.

October

Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 1 to 5.

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., Oct. 3.

AATCC, Piedmont Sect., annual meeting, Charlotte Hotel, Charlotte, N. C., Oct. 6.

North Carolina Textile Manufacturers Association, annual meeting, The Carolina Hotel, Pinehurst, N. C., Oct. 10 to 12.

Textile Operating Executives of Georgia, A. French Textile School, Georgia Institute of Technology, Atlanta, Ga., Oct. 13.

ASTM, Committee D-13, fall meeting, Warwick Hotel, New York, N. Y., Oct. 16 to 19.

International Knitting Machinery & Accessories Exhibition, Granby Halls, Leicester, England, October 17 to 27.

Southern Textile Methods and Standards Association, fall meeting, Clemson House, Clemson, S. C., Oct. 18 & 19.

AATCC, Northern New England Sect., Science Park, Boston, Mass., Oct. 19.

November

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., Oct. 7.

AATCC, Western New England Sect., Rapp's Restaurant, Shelton, Conn., Nov. 16.

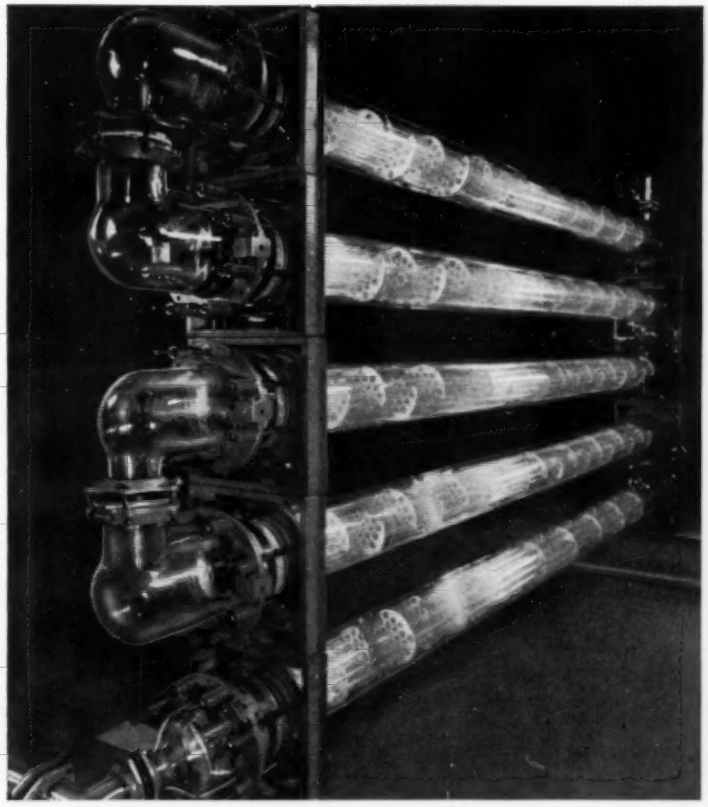
22nd National Exposition of Power and Mechanical Engineering, New York Coliseum, New York, N. Y., Nov. 26 to 30.

December

AATCC, Northern New England Sect., annual meeting, Hotel Vendome, Boston, Mass., Dec. 1.

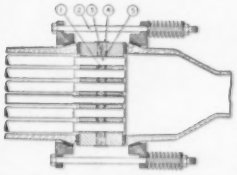
AATCC, South Central Sect., Hotel Patten, Chattanooga, Tenn., Dec. 1.

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., Dec. 5.



The PYREX *brand shell and tube heat exchanger is a low-cost, no-maintenance way to get hot water heat recovery, get better utilization of b.t.u.'s. Hard glass resists scaling and algae deposits even with sea or river water. Read the many other varied advantages you can get with these new units.*

Ends floating head, packing gland troubles



The unique "fluid" seal between the shell side and the tube side is effected by a Silastic sealer sheet (1). This acts as a fluid and is put under fluid pressure by tightening the flange bolts (2). The fluid is completely contained in the cavity formed by the tubes (3) and the retainer ring (4) around the outside of the tube sheets. The Silastic sealer sheet is compressed against the Teflon sealer sheet protector (5), which presses against the precision-finished tube ends, creating a leakproof seal.

Heat, cool and condense corrosive fluids safely in PYREX brand modular shell and tube exchangers

No metal pickup danger

Now you can heat, cool and condense corrosive textile dyes and chemicals as easily as if they were noncorrosives.

Because they contact only glass, Teflon and ceramic materials, even corrosive fluids like chlorine compounds can't harm PYREX brand shell and tube heat exchangers. These units are safe, too, for metal-sensitive fluids.

No heat flow barrier

The smooth surface of glass helps keep fluid velocity high. Less stagnant film builds up between the fluid and shell on either tube wall. And glass' smooth surface resists scale and algae deposits. Even high viscosity fluids find it hard to grip glass.

Initial high efficiency stays high permanently.

Wide versatility

The individual shell and tube units are mass-produced standard modules. You circuit the multiples you need in series, parallel or series-parallel flow combinations. You add units as demand increases or cut capacity with external manifolding when demand is down.

Built to bring you savings

Mass production gives you low first cost and off-the-shelf delivery. Installation costs are low because you need only two men and no hoists or cranes. We supply the mounting brackets, the only supporting framework you need.

You get low maintenance costs because there is no corrosion and no scaling. You clean PYREX brand shell and tube with dilute HCl or even a detergent rinse, without dismantling. The external metal parts are Monel metal or epoxy coated cast iron.

Two models, two sizes

You can choose the new PYREX brand shell and tube heat exchanger in either 50 sq. ft. or 13½ sq. ft. capacities in standard or regenerative types. The standard model takes corrosives on the tube side only. The regenerative takes corrosives on both tube and shell side.

Design Manual tells all

"Design Manual for PYREX brand Modular Shell and Tube Heat Exchanger Units" is a detailed engineering reference guide. It shows you how to select units, lay out systems, engineer systems and order equipment.

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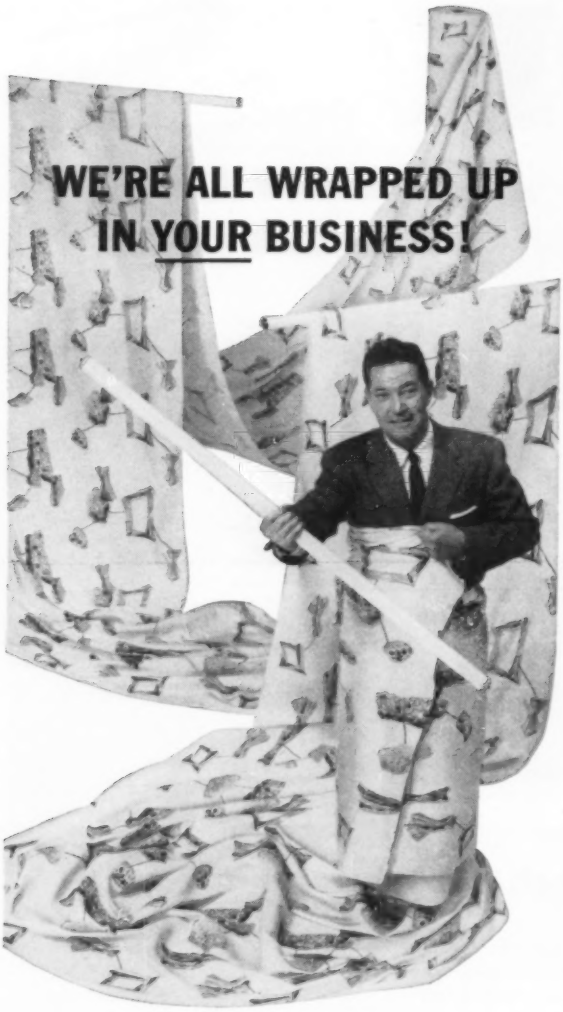

Where color and texture are vital, lighting is vital. That's why General Electric lighting engineers have made the textile business their business.

In one textile mill, a $45,000 shipment of cloth was recently returned because it was graded wrong according to color. G-E lighting engineers were called in. They relighted the grading areas to give the right light, of the right color, in the right place to make it virtually impossible for such a costly error to re-occur.

General Electric has trained specialists in lighting for the textile industry. Why not benefit from their specialized knowledge. Contact your local G-E distributor for the latest information on how you can increase the efficiency of your mill—increase your profits—with planned lighting. Or write directly to Large Lamp Dept., General Electric, TW-5, Nela Park, Cleveland 12, Ohio.

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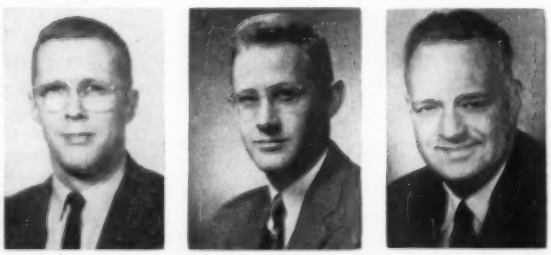
NEWS about SUPPLIERS

AEROVANT FAN CO., INC., Piqua, Ohio—Has appointed C. Richard Sword manager of sales. . . . **ALLIED CHEMICAL & DYE CORP.**, New York, N. Y.—Has made the following appointments in the sales department of the Solvay Process Div.: Hugh W. Causey, assistant director of sales; Robert P. Baynard, manager of the Charlotte, N. C., office; Robert L. Reynolds, manager of the newly established Organic Chemicals Section; George R. Barclay, assistant to the manager of the Special Alkalies Section; Ronald Lovatt, supervisor of the Calcium Chloride Section. The National Aniline Div. will build an addition to its Research-Engineering Center, Buffalo, N. Y. . . . **AMALGAMATED CHEMICAL CORP.**, Philadelphia, Pa.—Has named Robert H. Smith to its Southern sales staff at Greensboro, N. C. . . . **AMERICAN ENKA CORP.**, New York, N. Y.—Has named A. B. Harris, Jr., as manager of its nylon-sales department. . . . **AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS**, Lowell, Mass.—Has elected Arthur R. Wachter of American Viscose Corp., Philadelphia, Pa., to its executive committee on research.

ARNOLD, HOFFMAN & CO., INC., Providence, R. I.—Has named Stanley W. Freeman to its sales force in Teterboro, N. J. . . . **ATLAS ELECTRIC DEVICES CO.**, Chicago, Ill.—Has named John K. Bice Co., Los Angeles, Calif., to represent it in southern California and Pacific Coast Chemicals Co., Berkley, to represent it in northern California. . . . **BAHNSON CO.**, Winston-Salem, N. C.—Has named R. F. Makepeace as New England representative. . . . **BARBER-COLMAN CO.**, Rockford, Ill.—Has named John B. Moore and Edward W. Sullivan to the service-engineering staffs of the Philadelphia, Pa., office. James T. Shelton has been named to the service staff of the Buffalo, N. Y., office and Walter Gilmore has been named to the New York, N. Y., office in the same capacity. . . . **BRISTOL CO.**, Waterbury, Conn.—Has named L. B. Lumpkin manager of the Pittsburgh, Pa., office and W. C. Peterson manager of the Birmingham, Ala., office.

COCKER MACHINE & FOUNDRY CO., Gastonia, N. C.



Saco-Lowell Shops, Boston, Mass., has named STEPHEN T. WHITTIER, II, (left) assistant to A. K. Landau in the sales-research department and JOHN A. ENGLAND (center) assistant secretary. E. R. JEROME (right) will continue to serve as general manager of Victor Ring Traveler Co., Providence, R. I., recently purchased by the Pawtucket Spinning Ring Co. division of Saco-Lowell.

TENSION:

How to control it on
ABBOTT QUILL WINDERS

With the development of an improved compensator mounting bracket for Abbott pin-board type Quill Winders, Walter Kidde & Company, Inc., now offers textile mill owners a new high in dependable, efficient yarn tension control.

Used in conjunction with famous Kidde Double Disc Compensators, which are now available for spun yarns as well as continuous filaments, the new Kidde mounting arrangement (illustrated on the left) affords zero tension at the doffing station, preventing jamming of the full quills. Zero tension is also supplied during the first few wraps of the bunch, keeping "missing" to a minimum.

Practically every "quality conscious" weaving mill in the United States and many abroad have proven through constant use that Kidde Double Disc Compensators mean fewer faulty quills, more uniformly controlled fabric width, closer yardage differences from quill to quill and an actual cost saving in reduced loom down time and yarn waste.

You, too, can use Kidde compensators to help you turn out better products at less cost. For more information, write Kidde today.

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For more information, write direct or use Reader-Service post card.

—Has added the Sucker hot-air dryers, the A. Monforts line of cloth-finishing equipment, and Thies dyeing equipment to its present line of equipment. . . . **CORN PRODUCTS REFINING CO.**, New York, N. Y.—Has appointed Thomas A. Bruce assistant bulk-sales manager. . . . **DEWEY & ALMY CHEMICAL CO.**, Cambridge, Mass.—Has elected George W. Blackwood president and William L. Taggart, Jr., executive vice president. . . . **DRAPER CORP.**, Hopedale, Mass.—Has elected Thomas H. West, Charles F. Miller, Kenneth Howie, Claude F. Snider, Robert D. Donley, Warren D. Oliver, and J. Willard Morgan to the board of directors. The company will add 20,000 sq. ft. to its warehouse at Spartanburg, S. C. . . . **E. I. DU PONT DE NEMOURS & CO., INC.**, Wilmington, Del.—Has made the following appointments in the Electrochemicals Dept.: Samuel C. Harris, general assistant to the management of the department; Richard B. K'Burg, director of sales; Arthur I. Mendoilia, assistant director of sales; D. H. K. Livingston, assistant director of research.

EASTMAN CHEMICAL PRODUCTS, INC., Kingsport, Tenn.—Has named John R. Sherrill sales manager of the Textile Div. Other appointments are: W. T. Jackson, assistant sales manager of acetate yarn and staple sales and sales service; C. F. Earnhardt, Jr., assistant sales manager of Verel fiber, filter products, and sales development; Frank Ruddock, manager of Verel merchandising; H. W. Smith, service representative of Verel sales service. . . . **FOSTER MACHINE CO.**, Westfield, Mass.—has named John A. Moore manager of the Charlotte, N. C., office. John Davenport, representative in the Middle Atlantic, has relocated in Moorestown, N. J. . . . **GOODYEAR TIRE & RUBBER CO.**, Akron, Ohio—Has named H. F. Schweitzer

CHARLES E. GARNETT (left) has been named service representative of Product Sales, Inc., Whitman, Mass. THOMAS H. McCAMY (center) has been named to the sales staff of Seydel-Woolley & Co., Atlanta, Ga. ROBERT S. PENNOCK (right) has been named vice president in charge of domestic sales for Universal Winding Co., Providence, R. I.

WILLIAM T. BURGIN (left) has been appointed New York district sales manager for the Textile Fibers Dept., Carbide & Carbon Chemicals Co., New York, N. Y. ROBERT MELTON (center) has been named product manager in the sales division of Pneumafil Corp., Charlotte, N. C. HERBERT M. BAILEY, JR., (right) has been named to the sales staff of Industrial Rayon Corp., New York, N. Y.

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We're often asked, "Why is Crompton Factoring more economical than self-financing?"

Crompton Factoring is, in essence, a syndicated accounts receivable activity. Ours is a multi-million dollar business. Our experience in collection goes back many generations. Our credit information files are vast . . . perhaps enormous. They cover all parts of the country and many phases of business activities.

More often than not we will extend credit where the individual businessman will not. Thus, we help expand his volume. We turn his frozen receivable dollars into immediate cash—a liquid dollar earns more money than a frozen $5 bill. We will eliminate his receivable bookkeeping, and the cost of collection – as well as all credit risk.

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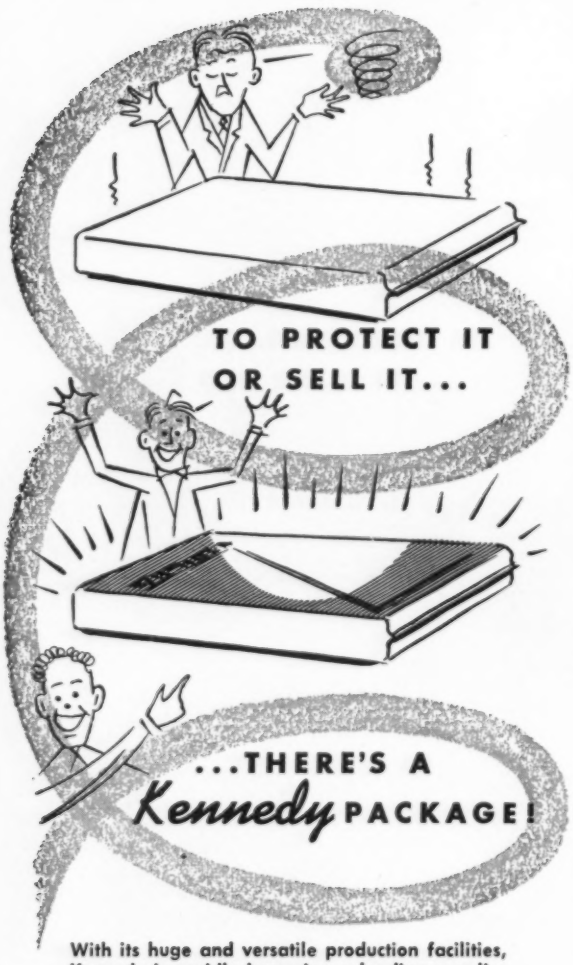

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Whether your problem is protection or sales appeal Kennedy can find the answer. Plain or printed papers, plastics and foils of all descriptions—hand or machine work . . . regardless of the materials and methods involved, here is textile packaging to precisely fit your needs.

Send this coupon today and learn how Kennedy packaging can serve you.

Kennedy Carliner & Bag Co., Inc. Shelbyville 7, Indiana

☐ Have a Packaging Engineer call

☐ Send me information regarding packaging of (product)

Firm Name_____

Address_____

City_____

Kennedy
CAR LINER AND BAG CO., INC.
SHELBYVILLE 7, INDIANA

NEWS ABOUT SUPPLIERS Continued

district manager of the Industrial Products Div. in Charlotte, N. C. . . . **HAYSSEN MFG. CO.**, Sheboygan, Wis.–Has opened a new sales office at 1140 Broadway, New York, N. Y. . . . **E. F. HOUGHTON & CO.**, Philadelphia, Pa.–Has named A. J. Andre assistant sales manager for the Southern Div., Charlotte, N. C. . . . **JERSEY STATE CHEMICAL CO.**, Haledon, N. J.–Has appointed H. Russell Haley as technical advisor and sales representative for northern New Jersey and central Pennsylvania.

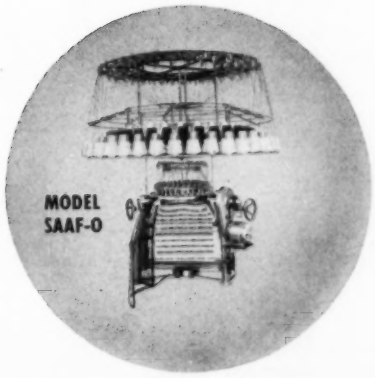
GARDNER-DENVER CO., Quincy, Ill.–Has named William B. Knoderer sales manager of the industrial division. . . . **S. C. LAWLOR CO.**, Chicago, Ill.–Has named Robert J. Jensen sales manager. . . . **McKIERNAN-TERRY CORP.**, Harrison, N. J.–

FRANK ANDERSON (left) has been named a technical representative for Moretex Chemical Products, Spartanburg, S. C. HARRY B. PATTERSON (center) and WALTON V. BYERS (right) has been added to the Charlotte, N. C., sales office of Whitin Machine Works

Has elected Carl W. Shattuck first vice president and Robert M. Fortune a vice president. . . . **MORETEX CHEMICAL PRODUCTS, INC.**, Spartanburg, S. C.–Has purchased additional processing equipment from Greenville Steel & Foundry Co. . . . **PARAMOUNT CHEMICAL CO.**, Columbus, Ga.–Has moved to its new location at 2078 Philips St. . . . **PNEUMAFIL CORP.**, Charlotte, N. C.–Has named Frank L. Wright director of the Manufacturing Div. Bernard C. Houston has been named a service engineer in the New England area.

SACO-LOWELL SHOPS, Boston, Mass.–Has announced the purchase by its subsidiary, Pawtucket Spinning Ring Co., of Victor Ring Traveler Co., Providence, R. I. . . . **SCHWARZENBACH HUBER CO., LURAY TEXTILE DIV.**, New York, N. Y.–Has appointed Hyde-Rakestraw Co., Philadelphia, Pa., as its sales representative in the U. S. . . . **VEEDER-ROOT, INC.**, Hartford, Conn.–Has elected Erle Martin and Carl McKelvy to the board. . . . **WARNER & SWASEY CO.**, Cleveland, Ohio–Has abolished the royalty agreement on the Whirlwind twister winder. L. M. Cole has been appointed European district manager with headquarters in Paris, France. . . . **WORTHINGTON CORP.**, Harrison, N. J.–Has taken over the Mason-Neilan Regulator Co., Boston, Mass., and will operate it as the Mason-Neilan Div. . . . **YALE & TOWNE MFG. CO.**, Philadelphia, Pa.–Has named Carl O. Hedner assistant general sales manager of the Materials Handling Div.

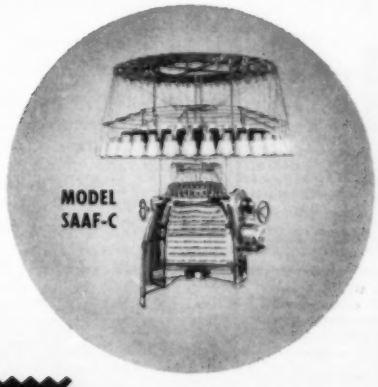
NATIONAL RING TRAVELER CO. AND THE STERLING DIV., Pawtucket, R. I., have opened this new office and warehouse in Gaffney, S. C.



These features make SUPREME

the latest word in modernized, low-cost knitting

of automatic, variable striped, patterned or solid jersey *with* or *without* knit-on simulated rib trim and draw thread section separators



HIGH SPEED PRODUCTION

Large number of feeds, rugged construction and stationary yarnstand give you vari-striped and patterned fabrics at unprecedented rates. Standard 26" machine has 32 four color striping boxes — 32 three position pattern wheels—32 automatic pattern placers.

TREMENDOUS VERSATILITY

Striping boxes, pattern wheels and placers on every feed let you pour out an infinite variety of striking, multi-colored fabrics — with pattern inserts twice the size previously possible. Knit a wide variety of fabric construction and textures with virtually any type of natural or synthetic yarn.

HIGH QUALITY AT LOW COST

Knitting efficiency and quality are insured by these ingenious new features—128 cone, "step-design" (Pat. Pend.) yarnstand, new knitting elements system, new striping box with easy, manual setting, new pattern placer with slideable studs for fingertip control and new, scissor-type, synchronized "no-waste" cutters.

SUPREME
KNITTING MACHINE CO., INC.
94-02 100th STREET, OZONE PARK 16, N. Y.
Southern Representative and Showroom:
The Mallack Co., 711 S. Tryon St., Charlotte, N. C.

Ask For This FREE Booklet On
SUPREME'S NEW "PAY-AS-YOU-DEPRECIATE" FINANCING PLANS
The PAYD Plan

 For more information, write direct or use Reader-Service post card.

Huyck's *new* *Pre-conditioned* COMPRESSIVE SHRINKAGE BLANKETS

- REDUCE BREAK-IN TIME
- LAST LONGER
- MINIMIZE COSTLY REPROCESSING
- ASSURE SMOOTH FINISH
- HOLD TO SPECIFIED DIMENSIONS
- REQUIRE FEWER MACHINE ADJUSTMENTS

Discuss your specific requirements with your Huyck Sales and Service Engineers.

A Product of the Huyck Industrial Fabrics Development Program

F. C. HUYCK & SONS

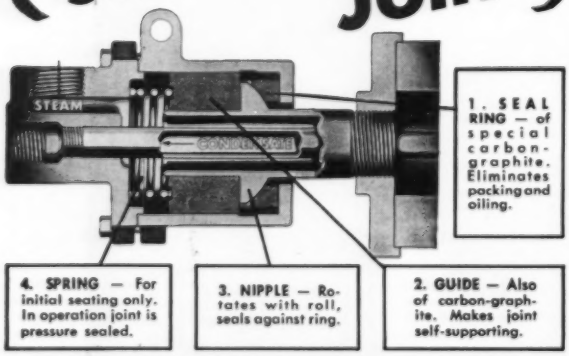
KENWOOD TEXTILE PRODUCTS

FIRST IN QUALITY . . . FIRST IN SERVICE

Established 1870 • Rensselaer, New York

Only 4 internal parts in this self-supporting

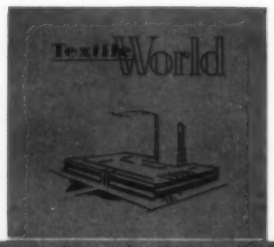
Johnson Joint


STEAM
CONDENSATE
1. SEAL RING — of special carbon-graphite. Eliminates packing and oiling.
2. GUIDE — Also of carbon-graphite. Makes joint self-supporting.
3. NIPPLE — Rotates with roll, seals against ring.
4. SPRING — For initial seating only. In operation joint is pressure sealed.

With this 3000 Series Type S-B2 Joint, an assembly plate can be added at any time; it is used with the Johnson Syphon Elbow, to hold internal parts in position when the head is removed. Write for Bulletin No. S-2001.

The Johnson Corporation

814 Wood St., Three Rivers, Mich.



NEWS about MILLS

COTTON MILLS

Caldwell Linen Mills Ltd., Iroquois, Que., will build a new mill to replace the one that will be demolished to make way for the St. Lawrence Seaway. The one-story building will contain 150,000 sq. ft. An additional 170 looms will be installed.

Cone Mills Corp., Greensboro, N. C., has discontinued operations at its Revolution Plant. Some of the looms have been moved to the Eno and Hanes mills. Some of the box looms have been moved to the Revolution flannel plant.

Cosmos Imperial Mills Ltd., Yarmouth, N. S., has installed air conditioning in the filling-winding section of the weaving department.

Esmond Mills Ltd., Granby, Que., is building a 10,000-sq.-ft. addition to its plant.

Georgia Webbing and Tape Corp., Columbus, Ga., has started construction on its plant at Talbotton, Ga.

Indian Head Mills, Whitney, S. C., has completed a 4,000-sq.-ft. addition. Additional dyeing and finishing equipment will be installed. The new addition is part of a $200,000 expansion program.

Kendall Mills, Bethune, S. C., is installing three Ross predryers for cotton sheeting.

Linda Cotton Mills, Cowpens, S. C., will be converted into a bonded cotton warehouse after the completion of a 90,000-sq.-ft. addition. W. L. Linder has been named manager.

Marion Mfg. Co., Marion, N. C., is building a 10,000-sq.-ft. warehouse. An additional 5,000 spindles are being installed.

Minnewawa Mfg. Co., Knoxville, Tenn., is building a 25x60-ft. addition to the side of its plant and a 32x32-ft. storage unit at the rear. The cost will be $48,000.

Oconee Mills, Westminster, S. C., has awarded the contract for its new cotton warehouse to Daniel Construction Co., Greenville, S. C.

Pepperell Mfg. Co., Pepperell, Ala., has installed a 60-in. continuous dyeing range.

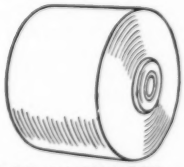
Riverdale Mills, Enoree, S. C., has completed a modernization program. The program included the installation of Pneumastop on the roving frames and Pneumafil central material-recovery systems and lint-free creels on all spinning frames.

Summerville Mfg. Co., Summerville, Ga., has completed the modernization of its spinning operation. A Pneumafil economizer unit system has been installed on 14,000 spindles of new Whitin spinning.

Wabasso Cotton Co. Ltd., Grand'Mere, Que., is building a $200,000 addition.

Worth Spinning Co., Stony Point, N. C., has announced a modernization program that will cost $175,000. About six roving frames will be replaced. Whitin change-overs and Pneumafil will be added to all spinning frames.

Woodside Mills, Anderson, S. C., is building an 18,000-sq.-ft. addition. The cost is $100,000.



LARGE PACKAGES HAVE ADVANTAGES IN THE STEPS THAT FOLLOW SPINNING

The new Type "D" Barber-Colman cheese holds 6½ lbs., which is 120,000 yards of 24s yarn, or 2½ times as much as the standard Type "C" cheese. This gives more slasher beams per cheese, even in the 40"-head size, and thus more loom beams per set. *This increase in loom beams per set, and the consequent reduction in creelings per week, can provide substantial cost reductions in many mills.* Similar advantages are available in the twisting.

The new Barber-Colman Type "DW" Warper shown above will wind slasher beams as large as 40" head. It has all the features of the familiar Type "VW", plus several new ones such as a pivoted comb support which moves the comb forward as the beam fills. The driving drum, clutch, brake, and motor — all of which are larger and more rugged to handle the heavier loads — are now arranged back of, rather than beneath, the beam. The creel shown is not the new Type "DC" Creel but is the standard Type "VC", as the new Warper can be used with either the large *or* the standard package. *For further details, please write for descriptive literature, or ask your Barber-Colman representative.*

USE BARBER-COLMAN INSPECTION AND SERVICE

For *all* your Barber-Colman machines, be sure to call on the Service Department of your nearest Barber-Colman office. The men who staff this organization are specially trained and equipped, with a wealth of experience in checking, maintaining, repairing, and modernizing all types and models of Barber-Colman equipment. They are backed by alert main and branch offices who see that they are supplied with complete and reliable parts and information.

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES

BARBER-COLMAN COMPANY

ROCKFORD • ILLINOIS • U. S. A.

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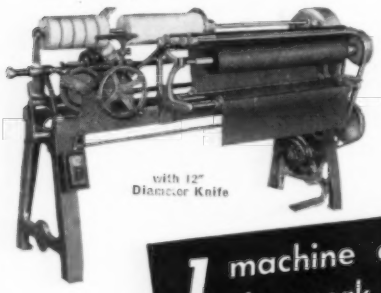
 For more information, write direct or use Reader-Service post card.

UTICA Combination Winding and Cutting Machine



To meet your special requirements, ask for information on Heavy Duty Model — also Utica Individual Roll Winders and Strip Cutters.

1 machine does the work of 2

THIS fast-producer has all the advantages of two machines, but uses the floor space of just one. Cuts light, medium, or heavy weight, both straight and bias fabrics. Cutter and Winder can be run at the same time. Rigidly constructed for long, trouble-free operation. Has measuring scale for cutting accurate rolls. It's safe—knife, grinding wheel, all gears and sprockets are well-guarded. Equipped with Veeder Root yardage counter. Made in 40, 45, and 55 inch width machines. Make your own bindings—as you need them—from the same material as your product—at lower cost. Write today.

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NOVELTY AND MILL SPECIALTY CO.

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Builders of Textile Machines Since 1903

CHAPMAN STOPS STATIC

★ Effectively
★ Instantly
★ Safely
★ Completely

MANY INSTALLATIONS HAVE BEEN MADE ON

CARDS
GARNETTS
WARPERS
CREELS
SLASHERS
NAPPERS
DRAW FRAMES
AND OTHER TYPES OF TEXTILE EQUIPMENT

LOW COST — EASILY INSTALLED

CHAPMAN ORIGINATED ELECTRIC STATIC ELIMINATORS AND HAS HAD MORE THAN 50 YEARS EXPERIENCE IN MANUFACTURING AND APPLYING THEM TO TEXTILE EQUIPMENT ALL OVER THE WORLD.

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ENGINEERING SERVICE IS AVAILABLE TO YOU WITHOUT OBLIGATION

✔ Improve quality
✔ Reduce waste
✔ Increase production

The Portland Company

28 FORE STREET ★ PORTLAND, MAINE

GENTLEMEN:
Please send me, without obligation, full information on CHAPMAN STATIC ELIMINATORS for use on the following equipment.

TYPE OF MACHINE .....
SIZE OF MACHINE .....
FIRM NAME .....
STREET & NO. .....
CITY & STATE .....
Signed By .....

WRITE FOR NAME OF NEAREST AGENT

NEWS ABOUT MILLS — Continued

WOOLEN AND WORSTED MILLS

Albany Felt Co., Albany, N. Y., plans to add an additional 4,000 sq. ft. to its plant in St. Stephens, S. C.

Burlington Industries, New York, N. Y., has moved the woolen department of Pacific Mills from Lawrence, Mass., to Rossville, Ga.

James Lees & Sons Co., Bridgeport, Pa., is building a new tufted-carpet mill at Clayton, Ga. The new mill will be known as Rabun Mills, Inc. The company is also building a new warehouse in Los Angeles, Calif.

Peerless Textiles, Inc., Cleveland, Tenn., is building a 250,000-sq.-ft. mill. The cost will be about $2,500,000.

Roxbury Southern Mills, Inc., Chattanooga, Tenn., is building a 16,000-sq.-ft. addition to its mill as part of a $200,000 expansion program.

Woolrich Woolen Mills, Woolrich, Pa., has installed $60,000 worth of new machinery. New equipment includes two spinning frames, two aluminum dye kettles, a new buttonhole machine, and some sewing machines.

SYNTHETICS MILLS

Deering, Milliken & Co., New York, N. Y., will install long pneumatic lap-control systems in every mill where the installation is applicable.

La France Industries, Anderson, S. C., has switched about 40 looms to the production of specialty silk fabrics.

Tait Yarn Co., Lincolnton, N. C., is building a 10,000-sq.-ft. brick addition to its mill. Capacity will be increased from 6,000 to 7,600 spindles.

Visking Corp., North Little Rock, Ark., has sold its fabrics division to Chicopee Mfg. Co., New Brunswick, N. J.

KNITTING MILLS

Charles H. Bacon Co., Lenoir City, Tenn., is moving 216 cotton-knitting machines from its Loudon plant to Lenoir City. The additional space at Loudon is needed for an expansion program.

Black Knitting Mills, Montreal, Que., is building a new plant at St. Lawrence Blvd. and Guizot St. Reuben Fisher is the architect, and A. Benjamin is the consulting engineer.

Brookmeade, Inc., Damascus, Va., is building a 40x80-ft. block building as part of a current modernization program.

Kenosha Full-Fashioned Mills, Inc., Kenosha, Wis., has purchased six Reading full-fashioned knitting machines.

Lebanon Knitting Mill, Inc., Pawtucket, R. I., has purchased South Pacific Textile Mills, Los Angeles, Calif. The company will be known as Lebanon of California. The new unit will knit, dye, and finish jerseys.

Miller Hosiery Mills, Inc., Concord, N. C., has been organized by Joseph F. Miller to make women's seamless fine-gauge hosiery. At present 20 machines are in operation, and the company hopes to have 60 in operation this summer.

Mojud Hosiery Co., New York, N. Y., has leased its hosiery plants and equipment to Chester H. Roth Co., New York, N. Y. Mojud will continue to operate its two lingerie plants in Wilmington, N. C. Joseph J. Bird will be in charge of manufacturing operations for Roth.

Phoenix Sweater Mills, Hatfield, Pa., has started production of women's full-fashioned sweaters in its new plant. The company plans to build a 10,000-sq.-ft. addition.

Sale Knitting Co., Martinsville, Va., is building a 3,000-

See what you can do with the new textiles

They're weaving magic into modern textiles. Today, fabrics can be made stronger or softer, cooler or warmer, tougher or lighter, shrinkproof, mothproof, fireproof, waterproof, and almost foolproof. While it would be difficult to predict what the textiles of tomorrow will be like, one thing is certain—chemicals will make an even greater contribution to their improvement.

To anticipate and provide for the growing chemical requirements of the textile industry, Olin Mathieson has a forward-looking program of *coordinated planning and production*. This assures textile processors of the availability of chemical raw materials regardless of changing market conditions or added requirements for plant expansions.

At present, a growing number of chemical consumers are coordinating their planning and production with Olin Mathieson . . . America's prime producer of basic industrial chemicals. Olin Mathieson's long experience and familiarity with the broad market picture can prove invaluable in *your* planning. Why not consult with us . . . now?

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OLIN MATHIESON CHEMICAL CORPORATION
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INORGANIC CHEMICALS: Ammonia • Bicarbonate of Soda • Carbon Dioxide • Caustic Potash • Caustic Soda • Chlorine • Hydrazine and Derivatives • Hypochlorite Products • Muriatic Acid • Nitrate of Soda • Nitric Acid • Soda Ash • Sodium Chlorite Products • Sulphate of Alumina • Sulphur (Processed) • Sulphuric Acid
ORGANIC CHEMICALS: Ethylene Oxide • Ethylene Glycols • Polyethylene Glycols • Glycol Ether Solvents • Ethylene Dichloride • Dichloroethylether • Formaldehyde Methanol • Sodium Methylate • Hexamine • Ethylene Diamine • Polyamines • Ethanolamines • Trichlorobenzene • Polychlorobenzene • Trichlorophenol

Write for Free Information on Johnson Textile Machinery Replacement Bearings

The ordering of maintenance material for textile machinery is simplified with this new Johnson folder which illustrates and describes a wide range of bearings for several leading makes of textile equipment.

You can order in confidence for Johnson Bearings are made to the exact specifications of the original equipment. The design of each bearing, its alloy, size-tolerances and oil grooving all are identical with the bearing to be replaced.

For your free copy of this Johnson Textile Bearing Folder JBL-9, write Johnson Bronze Company, 364 S. Mill Street, New Castle, Pa.

Johnson Textile Bearings

MODEL 8-D-1

PORTABLE ROTARY WITH MOTOR DRIVE

No exposed gears. Self lubricated gear reduction unit. Chain drive to *Merrow Butted Seaming Head* or *Dinsmore Single Chain Stitch Head.* Automatic cloth stripper. Wide range of stitch requirements.

DINSMORE MANUFACTURING CO.

BOX 267 **SALEM, MASS.**

sq.-ft. addition to Plant No. 2.

Sandhurst Mills, Inc., Rockingham, N. C., is building a 3,000-sq.-ft. addition. The space will be used for storage and eventually for production.

Signal Knitting Mills, Graysville, Tenn., has started operations in the former Graysville Hosiery Mill. At present 35 persons are employed, and plans are for 200 to be employed in the future.

DYEING AND FINISHING PLANTS

Caledonian Dye Works, Philadelphia, Pa., has installed two 1,200-lb. stainless-steel Hussong dyeing machines.

Mylan Finishing Co., Paterson, N. J., will install new finishing machinery in an additional 10,000 sq. ft.

Harold Ackerman has been elected president of Virginia Woolen Co., Winchester, Va.

J. J. Adams has been promoted to general manager of Rock Hill Printing & Finishing Co., Rock Hill, S. C.

C. E. Anderson has been promoted to plant manager of Excelsior Mills, Union, S. C.

Charles H. Baird has been named general manager of Lebanon Woolen Mills, Lebanon, Tenn.

Leonard Ballard has been named secretary of Lebanon Woolen Mills, Lebanon, Tenn.

H. H. Barker has been named assistant head of the quality-control department at Chatham Mfg. Co., Elkin, N. C.

Clare Bedell has been named general manager of Pawtucket Valley Dye Works, Phenix, R. I.

Victor Bilfinger has been named overseer of finishing at A. D. Ellis Mills, Monson, Mass.

KURT TRUEB has been appointed vice president in charge of weaving operations for The Schwarzenbach Huber Co., New York, N. Y.

Albert E. Bowman has been named first-shift overseer at Aragon Mills, Aragon, Ga.

M. W. Brunson has been appointed assistant superintendent of American Thread Co., Dalton, Ga.

Walter Calderwood has been promoted to overseer of carding at Marland Mills, Andover, Mass.

THIS MAN HAS HUNTED ALL OVER CREATION. But when it comes to tracking down a complete selection of needles he knows right where to go. After all, there is only one correct answer—for knitting, sewing, tufting, or felting —it's **THE TORRINGTON COMPANY.**

Torrington, Conn., U.S.A. Branches in New York, Philadelphia, Boston, Chicago, Greensboro, St. Louis. Pacific Coast Representative: E. G. Paules, Los Angeles

Tough? Absolutely!
EPI Patented Lock Ring* construction resists the tremendous crushing force of tenacious yarns. Designed for the long pull.

*U. S. Patent 2,625,343

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A copy of this quick-reading, 8-page booklet is yours for the asking. It contains many facts on the benefits derived from your business paper and tips on how to read more profitably. Write for the "WHY and HOW booklet."

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NEWS ABOUT MEN — Continued

HALL

GREEN

ROBERSON

DENNIS

LYTTON

LIPSEY

DANVILLE YARN MILLS, Bon Air, Ala., has announced the following appointments: C. L. HALL, vice president and general manager; HUEY T. GREEN, overseer of carding; CLYDE ROBERSON, overseer of spinning; RAYMOND DENNIS, foreman, second-shift carding; HENRY LYTTON, foreman, second-shift spinning; LECIL LIPSEY, assistant foreman, second-shift spinning.

F. J. Came has been named superintendent of weaving and dyeing at Massachusetts Mohair Plush Co., Lowell, Mass.

John T. Cashion has been named general manager of the Mayodan and Dobson plants of Washington Mills Co., Winston-Salem, N. C.

Summey Cauble, Jr., has been named superintendent of the Arlington Plant of Textiles, Inc., Gastonia, N. C.

Richard T. Chatham, Jr., has been elected vice president of Chatham Mfg. Co., Elkin, N. C.

Earl L. Clifford has been elected a vice president of Fruit-of-the-Loom, Inc., Pontiac, R. I.

William Converse has been named overseer of spinning at Neponset Woolen Mills, Canton, Mass.

Otha A. Corriher has been elected treasurer of Linn Mills Co., Landis, N. C.

S. J. Craig, Jr., has been promoted to plant manager of Hatch Mill, Columbus, N. C.

Joseph Davidson has been named overseer of carding at Hartford Woolen Co., Hartford, Vt.

R. G. Davidson has been promoted to vice president of Flagg-Utica Corp., Florence, Ala.

Henry Dennison has been named overseer of dyeing at North Star Woolen Co., Sanford, Me.

Wade F. Denning has been elected vice president of China Grove Cotton Mills Co., Kannapolis, N. C.

Edward J. Dooskin has been made head of manufacturing operations for the Texstar Non-Woven Fabric Div. of Star Woolen Co., Cohoes, N. Y.

Harold P. Duncan has been named manager of the Milledgeville, Ga., plant of J. P. Stevens & Co., Inc.

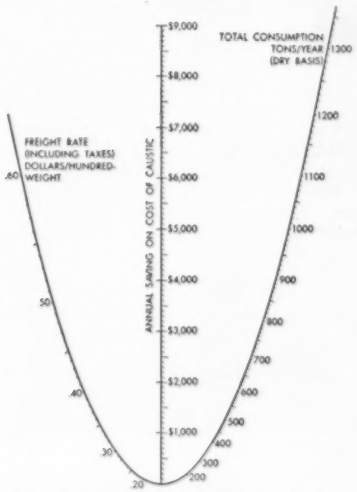
John Francis has been named superintendent of the C shift at Chatham Mfg. Co., Elkin, N. C.

BRIEFS
for heavy-chemical buyers

50% or 73% Caustic? Choosing a supplier Sodium Sulfide

50% to 73%—
some save, some don't

To estimate quickly whether you can save by switching from 50% to 73% liquid caustic soda, simply draw a line on this nomograph.



Start at your freight rate and draw to your annual consumption in tons, dry basis. Your approximate savings on freight will appear where you intersect the center line.

From this figure, subtract annual depreciation for dilution equipment. (We'll be glad to advise you on cost of this equipment.)

If you still show a saving, it would be wise to consider the big switch seriously.

For more facts on the economics of 50% and 73% caustic, check the coupon for a copy of our pocket-size *Caustic Soda Buyer's Guide.*

And for specific technical advice centered on *your* requirements, just phone or write the nearest Hooker sales office.

Choosing a supplier

Service is a large part of what you pay for when you buy caustic soda.

Here are some important "service" points to look for when you're considering a source of supply. (As a Hooker customer, you enjoy *all* of them.)

1. Supply security. How flexible are your supply lines? For instance, a supplier with plants and stock points on deep water may be able to offer you a choice of rail or water delivery. This can assure you steady supply in case of rail service interruption.

2. Realistic contracting. Your agreements with your supplier should realistically reflect your expected needs *and* the supplier's ability to consistently deliver the tonnage you need. Best yardstick for measuring this ability is a supplier's performance record. Hooker, for example, has an unbroken 50-year record of fulfilling contract commitments.

3. Engineering help. A supplier's engineering staff can help you set up a new caustic handling system—or revamp an old one—with advice, and with actual design assistance.

4. Safety programs. The men in your plant who handle caustic soda can benefit from safety suggestions offered by your supplier. You should have on tap the latest in safety equipment, plus up-to-date information on the safe handling of caustic soda.

We'd be happy to enlarge on these points, with your caustic requirements in mind. A phone call or note to the nearest Hooker sales office will bring you the specifics.

A tanner could tell you . . .

what can happen if sodium sulfide picks up iron.

Blue blotches are likely to develop in his leather.

The five steps we take to help *tanners* avoid this situation may help *you,* if you process with sodium sulfide:

1. We use only our own caustic soda in making sulfide. This gives us close control of its composition.
2. We never re-use a sulfide drum.
3. Every drum is lacquer-lined to prevent iron contamination.
4. Six sturdy lugs hold the drum lid tight during handling and storage.
5. Each lid is lacquer-sealed to keep the product at full strength.

The clean, strong flakes dissolve right into process, even without stirring. No waiting; no decanting.

For samples, write on your business letterhead.

Check items you'd like to receive:

☐ *Caustic Soda Buyer's Guide.* Lists advantages of 50% and 73% solutions; comparative costs; capacities of tank cars and other containers; useful shipping information.

☐ Technical data on caustic soda.

Need information on these other Hooker products used in the textile industry? Check here for technical data sheets:

☐ Sodium Sulfide
☐ Sodium Sulfhydrate
☐ o-Dichlorobenzene
☐ Lauryl Pyridinium Chloride

Clip and mail to us with your name, title, company address.

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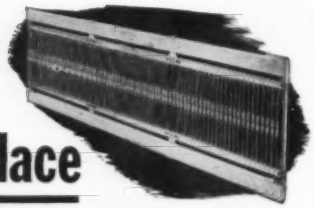
Harnesses Cleaned in Place Without Binding Warps



One Pennsylvania textile mill was troubled with heavy deposits of lint, sizing, and dust that built up on their reeds and harness assemblies. Solvent cleaning was ineffective because the sticky soils would drop down into the heddles and cause the warps to bind.

Then, the local Oakite Man suggested spraying the parts with a solution of Oakite Composition No. 12. Results were immediate: Soils and gummy deposits were thoroughly removed, and surfaces dried down smooth and clean with just the right "slip". Oakite Composition No. 12 provided temporary rust prevention, too, and greatly reduced subsequent build-ups of lint and sizing deposits. For more details, write Oakite Products, Inc., 26C Rector Street, New York 6, N. Y.

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34 Crown Street
NASHUA, N. H.

NEWS ABOUT MEN — Continued

Richard Gaudreau has been promoted to overseer of weaving at Stevens Linen Associates, Webster, Mass.

Clovis Gignac has been named superintendent of yarns at Lincoln Mills Co. Pascoag, R. I.

Lloyd Goodwin has been named overseer of carding at General Spinning Corp., Lowell, Mass.

William M. Grosvenor, Jr., has resigned as vice president in charge of research and fabric development at Sidney Blumenthal & Co., Inc., New York, N. Y.

Llewellen P. Haden has been elected president and treasurer of Charlottesville Woolen Mills, Inc., Charlottesville, Va.

E. H. Hance has been transferred to the Union, S. C., plant of Excelsior Mills, Inc., as superintendent of dyeing and finishing.

Nelson N. Harte has resigned as plant manager of Trenton Mills, Inc., Trenton, Tenn.

J. J. Hepburn has been named overseer of dyeing at Kenyon Piece Dye Works, Kenyon, R. I.

A. A. Hobbs has been elected a vice president of Rex Mills, Inc., Gastonia, N. C.

William H. Hodgman has resigned as vice president and general superintendent of A. D. Ellis Mills, Inc., Monson, Mass.

William D. Holt has been named acting superintendent of the Oxford, N. C., plant of Burlington Industries.

Ned E. Howell has been named assistant overseer of the carding and spinning departments of Excelsior Mills, Union, S. C.

Robert J. Jackson has been named director of engineering and research at Bigelow-Sanford Carpet Co., Thompsonville, Conn.

William E. Jackson has been named assistant general manager of Dodgeville Finishing Co., Attleboro, Mass.

Jared L. Johnson has been named overseer of dyeing at Excelsior Mills, Union, S. C.

William L. Johnson, Jr., has been named assistant to **Arthur Burnett** in charge of rayon-spinning operations at Burlington Industries, Greensboro, N. C.

Samuel M. Jones has been named superintendent of Chicopee Mfg. Co., Manchester, N. H.

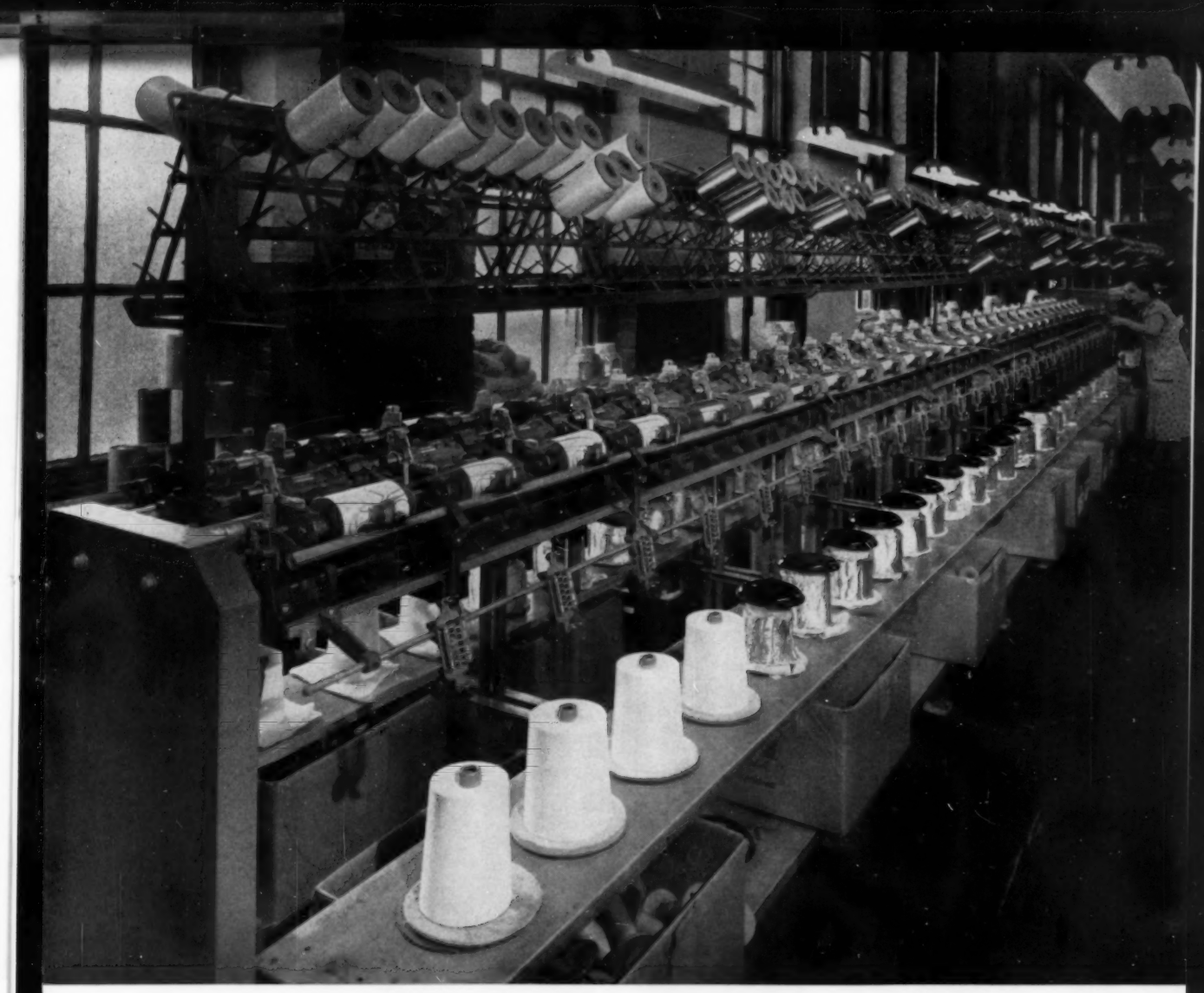
William I. Kent has been elected president of Kent Mfg. Co., Clifton Heights, Pa.

James King has been named vice president in charge of industrial engineering at Burlington Industries, Greensboro, N. C.

Haddon S. Kirk has been elected a vice president of Chatham Mfg. Co., Elkin, N. C.

Klem Klemavicz has been

LYNDALL F. CARTER (left) has been elected executive vice president and WILLIAM E. McDANIELS, production manager, (right) has been elected a vice president of William Carter Co., Needham Heights, Mass.



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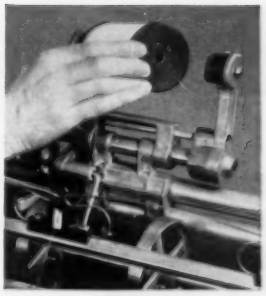
You get nothing but uniformly full spools – no overruns and no partially filled spools – with the Kidde-Sipp Winder because the instant a spool is full, it's stopped – automatically. And with one hand your operator can doff it and load again in seconds. These advantages combined with self-threading guides and high running speed mean this: one operator can tend more spindles and turn out more poundage on the Kidde-Sipp Winder than on any other machine. For complete information, write us today.



ONE HAND does it, without touching the yarn . . . operator can doff a full spool in a split second, with a flip of the hand . . . and her fingers never even touch the yarn.

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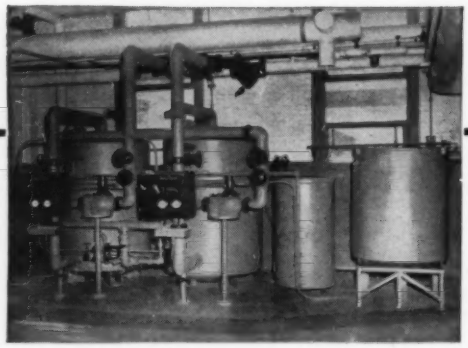

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NEWS ABOUT MEN Continued

HARRY L. SAIN has been elected a vice president of Patchogue-Plymouth Mills Corp., New York, N. Y.

S. PAUL MEADOWS has been named to head the Standards & Time Study Dept. of Roanoke Mills, Inc., Roanoke, Va.

named overseer of carding at Farnsworth Mill, Lisbon Centre, Me.

Richard Krueger has been named overseer of finishing at Lebanon Woolen Mills, Lebanon, N. H.

Gordon Loeb has been named overseer of finishing at Rockland Bleach & Dye Works Co., Baltimore, Md.

L. J. Low is now overseer of finishing at Blackstone Mills, Inc., Clinton, Mass.

J. Ben Mayo has been named assistant to **William H. Grier**, executive vice president of Rock Hill Printing & Finishing Co., Rock Hill, S. C. Mr. Mayo will serve as liaison man between the Rock Hill and Lyman plants.

Marcus McCreary has been promoted to manager of Flagg-Utica Corp., Florence, Ala.

Thomas F. McHugh has been named overseer at Irving Worsted Co., Chester, Pa.

Elwood Mull has been named superintendent of Reyville Textile Corp., Reynoldsville, Pa.

F. H. Orbison has been elected president of Appleton Woolen Mills, Appleton, Wis.

Robert Patterson has been elected chairman of the board of Triangle Finishing Corp., Johnstown, N. Y. Mr. Patterson has purchased controlling interest in the company.

Wendell M. Patton, Jr., has joined Shuford Mills, Inc., Hickory, N. C., as a vice president.

Hector J. Paulin has been named garnetting foreman at E. W. Stritch Co., Nutley, N. J.

H. Peter Pearson has been elected a vice president of Strong, Hewat & Co., N. Adams, Mass.

Melvin Rainville has been named overseer of finishing at Wilton Woolen Co., Wilton, Me.

Graydon Robinson has been named vice president of Lebanon Woolen Mills, Lebanon, Tenn.

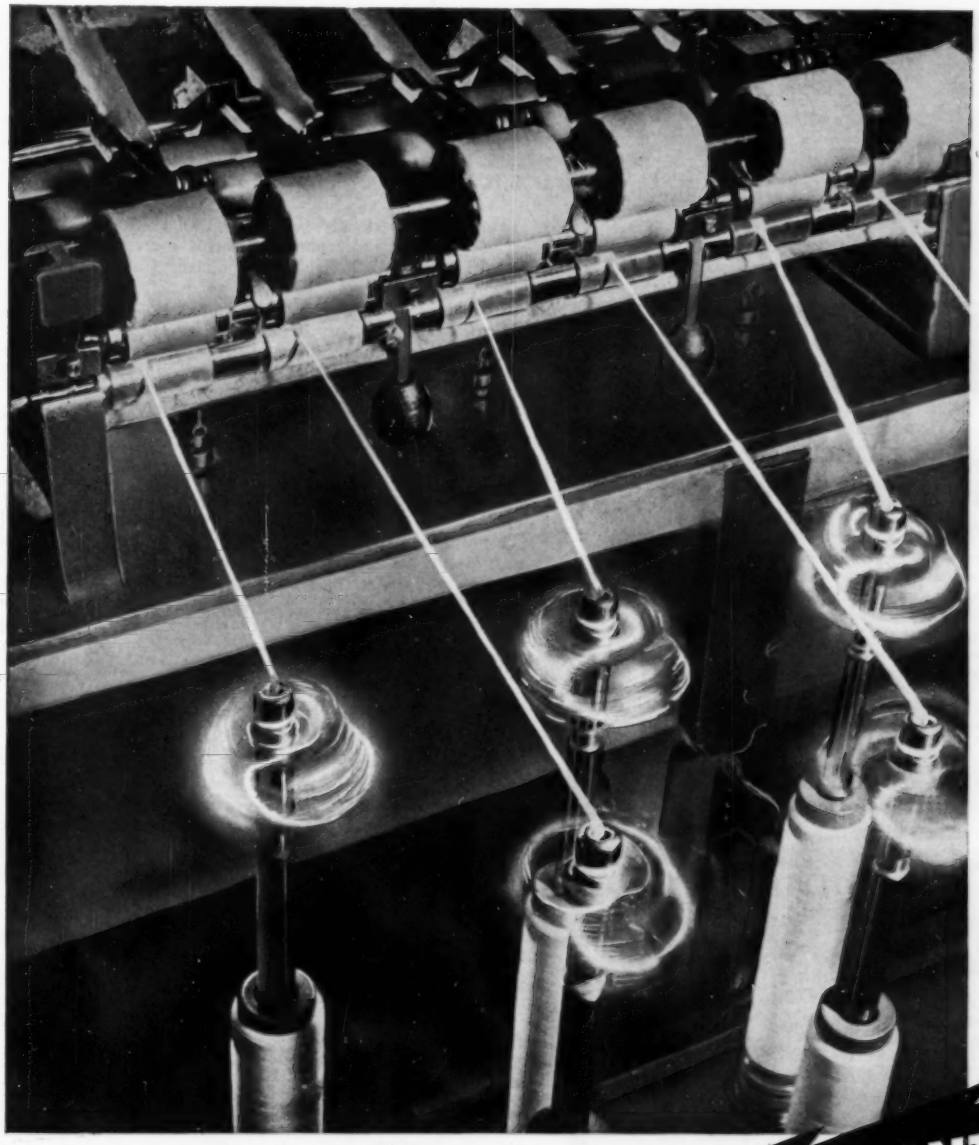
John H. Rutledge, Jr., has been elected secretary-treasurer of China Grove Cotton Mills Co., China Grove, N. C.

Bernard Schultz has been named overseer at Charlottesville Woolen Mills, Charlottesville, Va.

Jack Scott has been made assistant to the president of Carlton Yarn Mills, Cherryville, N. C.

Edgar Smith has been named resident manager of Maine Spinning Co., Skowhegan, Me.

H. J. Smith, Jr., has been elected vice president and general manager of Charlottesville Woolen Mills, Inc., Charlottesville, Va.



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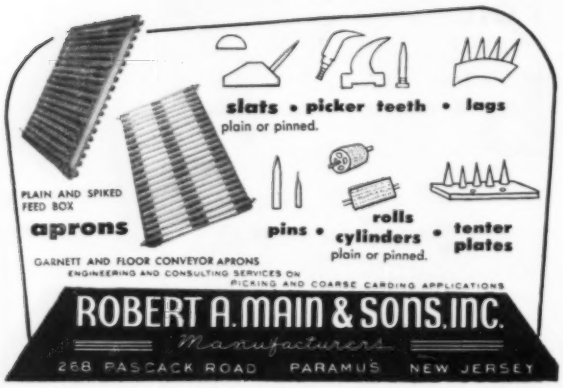
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COOL any building from the ROOF

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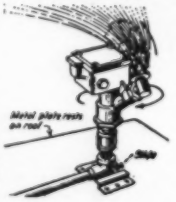

Everyone knows how the sun, beating down on the roof of a building, descends into the interior. Even with insulation, this imposes a big load on air conditioning.

Roof cooling is the answer. It can be used on any roof to keep the building cooler and save air conditioning costs. Best equipment for the job is Ruppright's Rotary Roof Cooler. Easily installed within a few hours by your maintenance department, it produces a thin film of water on the roof. This film evaporates but is continuously renewed by the slowly-rotating cooler making the roof cooler than the air.

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NEWS ABOUT MEN — Continued

James P. Smith has been named superintendent of Arms Textile Mfg. Co., Manchester, N. H.

Morris A. Speck has been elected secretary and treasurer of Rockford Textile Mills, McMinnville, Tenn.

Fran Succillion has been named overseer of finishing at Modern Central Dyers & Finishers, Inc., Paterson, N. J.

Joe Turner has been promoted to superintendent of the Vance Plant of Burlington Industries, Kernersville, N. C.

Edward B. Waller, Jr., has been elected secretary-treasurer and general manager of Philadelphia Hosiery Mills, Philadelphia, Tenn.

Walter Walterwood has been promoted to overseer of carding at Marland Mills, Andover, Mass.

Fred M. Wiley has been elected vice president in charge of all production for Abney Mills, Greenwood, S. C.

T. D. Wilkens, Jr., has been elected a vice president of Burton-Dixie Corp., Chicago, Ill.

Oscar W. Wilkerson, Jr., has been appointed a vice president of Coopers, Inc., Kenosha, Wis.

Chris Willis has been appointed superintendent of finishing at the Three Rivers, Que., plant of Wabasso Cotton Co. Ltd.

J. H. Wilson, Jr., has been named manager of the fabric division of Springfield Woolen Mills Co., Inc., Springfield, Tenn.

Jules Witten has been elected a vice president of Groves Thread Co., Gastonia, N. C.

OBITUARY

Alfred D. Bamberger, 65, president of Atlantic Cotton Felt Corp., Newark, N. J.

Nelson A. Batchelder, 76, retired general manager and a director of Empire Cotton Mills, Welland, Ont.

James A. Burke, 89, treasurer of Sagamore Mfg. Co., Fall River, Mass.

Norman D. Cann, 58, a director of Fulton Bag & Cotton Mills, Atlanta, Ga.

Frank C. Flint, 83, retired president of Knit Goods Specialty Co., Inc., Chicopee Falls, Mass.

Edward V. Gregson, assistant superintendent of the Sanforized Div. of Cluett, Peabody & Co., Inc., Troy, N. Y.

Moses W. Haber, 73, one of the founders of Erie Dyeing & Processing Co., Cleveland, Ohio, and Cashmere Corp. of America, Cleveland.

Alfred A. Halden, executive vice president and a director of National Starch Products, Inc., New York, N. Y.

W. M. Sherard, 87, former president of Green River Mills, Tuxedo, N. C.

Campbell L. Smart, 56, a director of Brinton-Peterboro Carpet Co., Peterborough, Ont.

Charles Thompson, 55, group leader in the Dyeing & Finishing Div. of the Research & Development Dept., Chemstrand Corp., Decatur, Ala.

John C. Turrell, 75, retired head of the Sanforized Div. of Cluett, Peabody & Co., Inc., Troy, N. Y.

J. Linzee Weld, 59, vice president of Textron American, New York, N. Y.

Harry Wilkinson, 74, retired cloth superintendent of Ayer Mill, Lawrence, Mass.

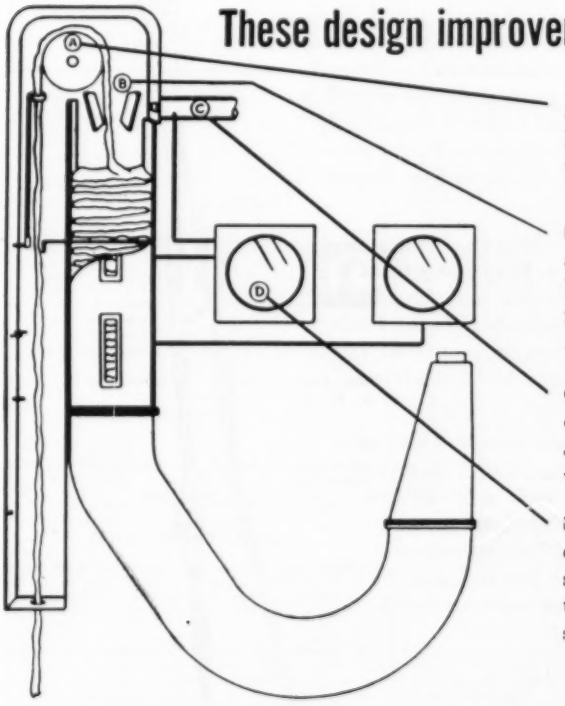
William T. Wilkinson, 88, retired superintendent and manager of Warwick Mills, W. Warwick, R. I.

New, simplified Du Pont J-Box offers

Improved bleaching ...lower costs

Du Pont's newly designed J-Box for new continuous peroxide bleaching systems or for modernization of existing installations offers you increased operating efficiency . . . at lower over-all costs. With fewer moving parts and simplified construction, the J-Box minimizes cloth distortion and abrasion. And you save up to 20% on construction costs. For full details, call your nearest Du Pont technical representative who will be glad to supply you with all of the information you need on the new J-Box.

These design improvements cut costs and improve quality



A. NEW DRAW ROLL ASSEMBLY. A single draw roll gently lifts cloth into storage chamber. For rope systems, a simple traverse pot eye and plaiter pile cloth evenly in the J-Box.

B. NEW HEAT CHAMBER gives you a 16-fold increase in available steam volume . . . materially improves cloth heating before piling in J-Box. This permits maximum heat with minimum steam consumption. The cloth is heated rapidly . . . passes through chamber in a relaxed state.

C. NEW STEAM DISTRIBUTOR introduces regulated amounts of low-velocity conditioned steam into this newly designed J-Box. This assures uniform heating of cotton fabric of all weights and constructions.

D. NEW STEAM CONTROL. Steam flow is regulated by the demand of cloth being processed. An adequate supply of steam is assured under all operating conditions. The control, recording and measuring instruments required for this system are available from most instrument manufacturers.

Du Pont does not build or sell bleaching equipment. These new J-Boxes may be obtained from a number of leading equipment manufacturers.

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DU PONT PEROXIDES

ALBONE® hydrogen peroxide, 35% and 50%

PERDOX® sodium borate perhydrate

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Sodium perborate tetrahydrate

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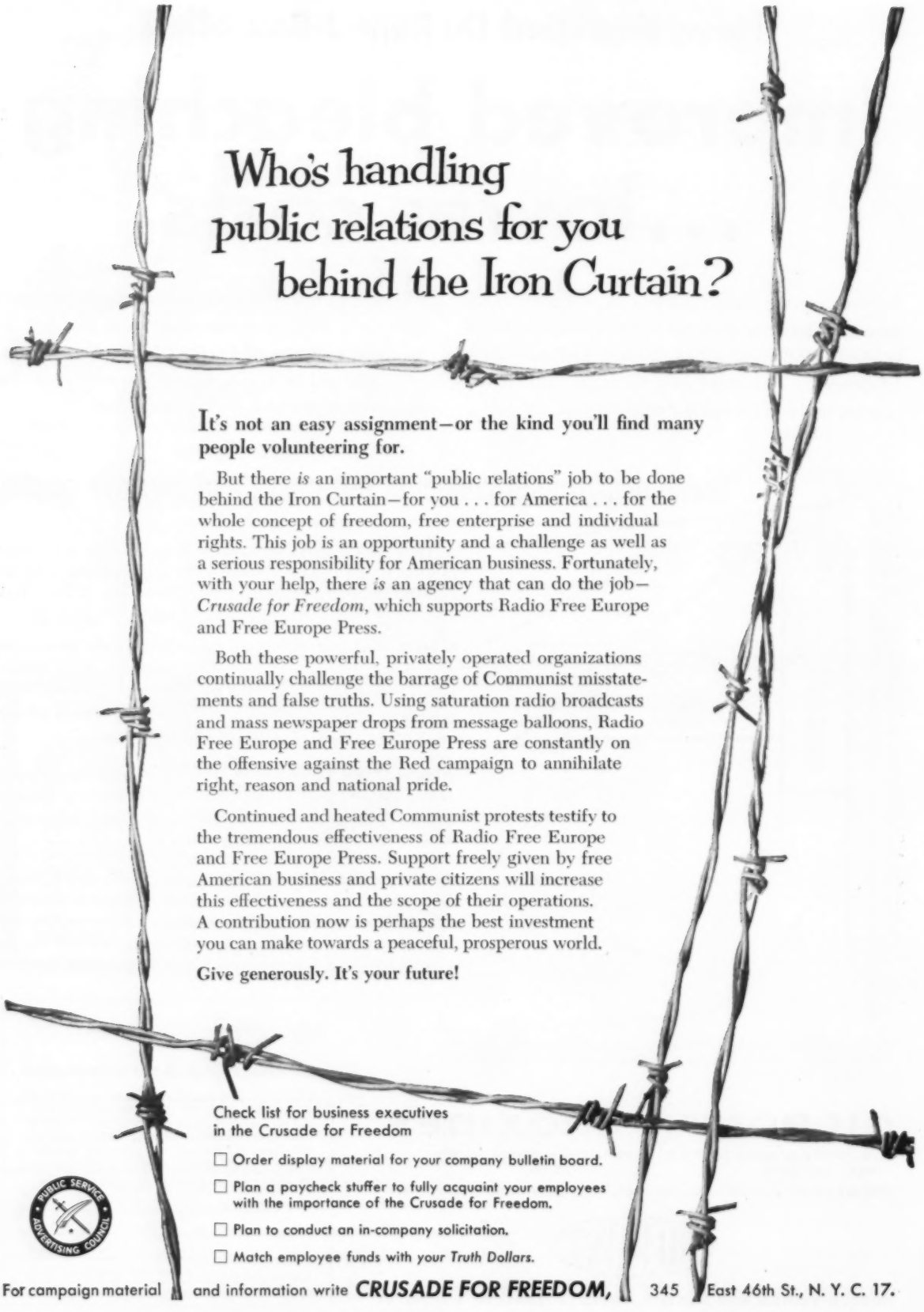
Who's handling public relations for you behind the Iron Curtain?



It's not an easy assignment—or the kind you'll find many people volunteering for.

But there *is* an important "public relations" job to be done behind the Iron Curtain—for you . . . for America . . . for the whole concept of freedom, free enterprise and individual rights. This job is an opportunity and a challenge as well as a serious responsibility for American business. Fortunately, with your help, there *is* an agency that can do the job—*Crusade for Freedom*, which supports Radio Free Europe and Free Europe Press.

Both these powerful, privately operated organizations continually challenge the barrage of Communist misstatements and false truths. Using saturation radio broadcasts and mass newspaper drops from message balloons, Radio Free Europe and Free Europe Press are constantly on the offensive against the Red campaign to annihilate right, reason and national pride.

Continued and heated Communist protests testify to the tremendous effectiveness of Radio Free Europe and Free Europe Press. Support freely given by free American business and private citizens will increase this effectiveness and the scope of their operations. A contribution now is perhaps the best investment you can make towards a peaceful, prosperous world.

Give generously. It's your future!

Check list for business executives in the Crusade for Freedom

- ☐ Order display material for your company bulletin board.
- ☐ Plan a paycheck stuffer to fully acquaint your employees with the importance of the Crusade for Freedom.
- ☐ Plan to conduct an in-company solicitation.
- ☐ Match employee funds with *your Truth Dollars.*

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Graduate engineer interested in staff work with major rubber company. Responsible for development of new or improved tire fabrics. Some specification duties, quality control and evaluation work in laboratory. Will handle special projects covering new processes for card treatment at textile mills. You can't afford to miss this opportunity. Write now for complete details. All inquiries strictly confidential.

P-1504, Textile World
520 N. Michigan Ave., Chicago 11, Ill.

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Man not over 35 to act as technical service representative. Must have textile background combined with general mechanical ability. Prefer college graduate but require at least two years college education or equivalent. Position entails considerable travel, offers permanency and many unusual opportunities. Replies held confidential.

P-1100, Textile World
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ASSISTANT WEAVING SUPERINTENDENT

Required for large progressive Rayon Weaving Mill. Applicants, preferably between the ages of 35-45, must be thoroughly experienced in the Warping, Sizing and Weaving of all types of Synthetic Filament yarns and should have a good knowledge of fabric construction.

Excellent working conditions and opportunity for first class man.

Salary according to qualifications and experience. Group Insurance and Pension Plan in operation.

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330 W. 42 St. New York 36, N. Y.

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Wanted—Manufacturer of mechanical rubber goods requires experienced graduate textile design engineer to develop fabric and yarn requirements for belting and hose. Liberal employee benefits and pension program. Send resume to Personnel Manager, Hewitt-Robins Inc., 240 Kensington Avenue, Buffalo 5, N. Y.

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Sales Representative traveller salesmen wanted for Northern and Mid Southern territories. Salary and commission. Experience in textile field desired. SW-1163, Textile World.

Wanted Manufacturer's Agent to represent old established company selling card clothing and an accepted fabric condenser tape in New England. RW-1243, Textile World.

POSITIONS WANTED

Plant Supt. or Supt. of weaving fully experienced all types fibers. Draper and C. & K. looms, and all preparatory debts. Excellent references. Will consider overseas position. PW-9302, Textile World.

20 yrs development & design engineer mechanical & fabric construction. Broad cloth & narrow webbing. Desires position with progressive company executive & managanial experience. Presently employed N. Y. State. PW-1421, Textile World.

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WE CAN PLACE—SUPTS., overseers and fixers in knit. mills; carpet supt.; wool. yarn and cloth mill supts.; throwing supt.; wstd. yarn mill supt.; rayon cloth supt. (foreign); supt. cot. bleach. and finish.; supt. novelty twist. yarn mill; wea ing supt. large wstd.-win. mill; designer and asst. supt. win. mill; designers nar. fabrics; pile fabric designer; nar. fabric inspector-foreman, also foreman drawing-in; supt. worsted yarn mill French system (foreign); night supt. wstd. yarn mill.

OVERSEERS FOR—win. card.; weav. cot. nar. fabrics; finish. lace fabrics; win. mule and frame spin.; pile fabric finish.; cot. piece goods dye.; dye. raw stock, yarns and piece goods; finish. velveteens; finish. cot. piece goods; cloth room; wstd. spin.; cot. piece goods bleach.; top dye. and vigoreaux print; put-up room print works.

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CHIEF ENGINEER

Graduate Mechanical Engineer with at least 10 years experience in Rayon Industry, preferably in staple, to take over-all charge of Engineering Department of smaller rayon plant. Scope of position covers maintenance, power, design and construction. Administrative ability required.

also . . .

DESIGN AND PROJECT ENGINEER

Graduate Mechanical Engineer, 3-5 years experience in Rayon or Chemical Industry, to be in charge of Design and Drafting Office in the Engineering Department of smaller rayon plant. Scope of work covers machinery—piping—and building—design, equipment layouts, engineering calculations and estimates.

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HARTFORD RAYON COMPANY
Division of Bigelow-Sanford Carpet Co.
Rocky Hill **Connecticut**

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PW-1571, Textile World
330 W. 42 St. New York 36, N. Y.

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Progressive European firm specialised exclusively in buying and processing viscose, acetate and synthetic yarns requires agents U.S.A./CANADA, well introduced Textile circles, capable of handling:

1—regular buying sub-standard yarns offered by Producers.
2—locating and purchasing all unusable packages of yarn from silk weavers, knitters of outer and under wear, throwsters, etc.
3—locating and purchasing cheap lots of yarn from merchants etc.

Will offer good commission; with possibility exclusive representation after trial.—Write

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WANTED: FOREMAN BLEACHER

Wide experience on continuous ranges particularly Becco type to organize and supervise production and technical operation for large modern South American mill. State references and qualifications.

P-1319, Textile World
330 W. 42 St., New York 36, N. Y.

TO SELL TO WOOLEN MILLS

WOOL SHODDY both REUSED and RE-POSSESSED. Liberal Commissions. Can be sold with other lines.

Write:

Minnesota Wool Stock Co.
243 Starkey St. **St. Paul, Minn.**

WANTED–TRICOT KNITTER

Young, intelligent knitter for fabric development and research work at our New York Lab. Previous machine shop experience preferred. Excellent opportunity. Apply by letter only. State full particulars.

NATIVE LACES & TEXTILES, INC.
261 Fifth Avenue, NYC

TEXTILE CHEMIST

We are a progressive and expanding company located in the United States with a Canadian subsidiary. Our plans include the establishment of laboratory facilities in Montreal to serve the textile industry, primarily in the Province of Quebec, on a wide range of textile products. We require a graduate Chemist with plant experience in printing and finishing, who is capable of handling technical problems, both in the laboratory and field on specialties for sizing, printing and finishing of cotton and synthetic fibres. Some development work may be required. Give details of education, experience and salary requirements.

P-9087, Textile World
330 W. 42 St., New York 36, N. Y.

SALESMAN WANTED

To sell Carding, Spinning and Weaving equipment and supplies in Georgia and Alabama. Our own men know of this opening. Prefer man with mill experience and sales experience but neither is necessary. Territory open has been thoroughly covered and is well established. Salary and commission make it possible for right man to earn well in five figures. Give full resume and particulars in first reply. All information kept confidential.

SW-1266, Textile World
330 W. 42 St., New York 36, N. Y.

SALES REPRESENTATIVE

Manufacturer of tapes, belting and strapping is expanding its sales organization and has need for two full time salesmen, one working out of the Charlotte Area and the other out of the Atlanta area. Salary, bonus and expenses. Age, education and experience secondary to native intelligence and ability. Replies held confidential.

SW-1267, Textile World
520 N. Michigan Ave., Chicago 11, Ill.

WANTED
DYESTUFF SALESMEN
experienced, with some following
for long established firm. Full support assured. Give details, terms desired first letter. Strictly confidential.

SW 1204, Textile World
330 W. 42 St., New York 36

Manufacturer's Representative Wanted
Manufacturer of Textile Machinery Replacement Parts Wants Active New England Representative Now Calling On Textile Mills and Garnetters Who Can Give Good Coverage. Write

RW-1569, Textile World
330 W. 42 St., New York 36, N. Y.

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When you are in need of specialized men for specialized jobs, contact them through an employment ad in this publication.

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(Classified Advertising)

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BO-1472 Textile World
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WANTED

N-Bore Copper Print Rolls in any condition. New or Used you will find our prices for your old copper very attractive.

COPPER PRINTING ROLLS CORP
42 Lane St. Paterson, N. J.
Phone Lambert 3-9642

WANT TO BUY
Electric Baling Presses
All Makes, Any Condition
Write, Wire or Phone BAldwin 3-8686
Fertik & Company
9th & Tioga Sts., Philadelphia 40, Pa.

WANTED—DYESTUFFS

Chemicals — Pigments — Solvents
Plasticizers — Plastics — etc.
By-Product — Wastes — Equipment
CHEMICAL SERVICE CORPORATION
80-10 Beaver St. New York 5, N. Y.

DYESTUFFS

Will buy your surplus and obsolete dyes and chemicals for cash.

NEW ENGLAND PRODUCTS CO.
91 Oliver St. Boston, Mass.
Established 1919

WANTED TO BUY

2—6 Spindle #8 Universal Winders

W-1365, Textile World
330 W. 42 St., New York 36, N. Y.

WANTED
LOOP DRYER
Automatic suitable for tubular knit goods. Must be in perfect condition.
Apply **SHAWIN CO. LTD.**
8031 18th Ave. Ville St. Michel, Quebec, Canada

WANTED
ReRoll and Slitter
Used slitter for occasional use, suitable muslin and 10 ounce burlap. 45" wide Minimum
P.A., KAY MFG. Corp.
Brooklyn 1, New York Phone: MAin 5-7300

WANTED FOR EXPORT
USED SINGLE COLOR LAQUER OR FLOCK PRINT MACHINE, WITH OR WITHOUT FLOCK BEATER BOX, FESTOON OR PARTS THEREOF.

W-1488, Textile World
330 W. 42 St., New York 36, N. Y.

LACE MACHINES

WANTED FOR EXPORT: 4 or 6—6 yard 9½ or 10 point levers

W-1487, Textile World
330 W. 42 St. New York 36, N. Y.

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that other readers of this paper can supply
or—
something you don't want
that other readers can use,
advertise it in the
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MODERN TEXTILE MACHINERY

AT THE FOLLOWING

LIQUIDATION SALES

The former PENDERGAST MILL,

Bridgeton, R. I.

1—Toledo Cloth Scale, Style #2900A
1—Andrews & Goodrich Cloth Conditioner, roller type
1—Parks & Woolson Semi-Decater, 72", L4 Pump
1—Yorkshire 2 Bowl Crab, 72" wide
1—Woonsocket Brusher & Sander, 66½" wide, motor
1—Miller Pin Tenter Dryer, 70" wide, electric guides
2—Parks & Woolson Cloth Perches, ceiling type, 72" wide
1—Birch Doubling & Tacking Machine
1—Ingersoll-Rand Air Compressor, Type ERI, 9 x 6, 10 HP
1—Ingersoll-Rand Air Compressor, Type 30, 5 x 3 x 3½, 5 HP
1—South Bend Lathe, 36" bed, 10" swing, ½ HP motor
36—C&K W3 Looms, 82", 25 harness dobby, motor
12—C&K W3 Convertible Looms, 82", 25 harness dobby, motor
12—C&K W3 All-purpose Looms, 82", 25 harness dobby, motor
24—Spdls. Hacoba Automatic Filling Winders—1954
12—Spdls. Britoba (Mischamp) Filling Winders—1951
1—H&W Yarn Conditioner, Ri, single truck
1—Voelker 66" High Speed Press, motor driven
1—Rodney Hunt Fulling Mill, 6 string, 25 hp. motor
1—Rodney Hunt S.S. Washer & Dye Kettle, 6 string
1—Rodney Hunt 8 string Dolly Washer
1—Birch Detwister and Birch Detacker
1—Gessner 72" Scutcher & Vacuum Extractor, 25 pump

The former AMES TEXTILE CORP.,

Southbridge, Mass.

2—Allen Hi Speed Warpers, 54¼", Mag. Cone Creel, 480 Ends
2—American Laundry Cascade Cypress Washers, 6 compts.
110—Crompton & Knowles W2 Looms, 82", 20 harness dobby, motor
1—Bachman-Uxbridge Gentle Air Slasher, 80", West Pt. Boxes, 1950
8—Saco-Lowell Tape Drive Twisters, 200 spdls. ea., 3" ri, 4" x 5" ga.
4—Riggs & Lombard Stainless Steel Encl. Dye Boxes, 6' wide
1—Birch Cypress Washer, 82" wide, 4 squeezers, 1946
1—Riggs & Lombard Rope or Open Washer, 4 compts., 54", pneu. sq.
1—David Gessner Hi-Speed Press, 66" wide, complete, 1948
2—Parks & Woolson Centurial Shears, 66", 3 blades, motor driven
2—Gessner & Parks & Woolson Semi-Decaters, 72" & 66", 1948-53

The former CLUETT, PEABODY MILL,

North Grosvenordale, Conn.

1—Ingersoll-Rand Air Compressor, 20 x 13, Synchronous 125 HP
1—Worthington Air Compressor 19 x 13, 100 HP Motor
2—Abington Card Stripping Systems, for 150 cards
1—Amco Humidifier System, Model #5 & #6 Heads, 1200 heads
40—Del. Saco-Lowell Controlled Draft Drawing, 4 del, 1949
3—Saco-Lowell Lap Winders, Model #37, 1949
19—Saco-Lowell Combers, 12 heads, 10½" lap, 1936-41
1—Barber-Colman Hi-Speed Quiller, 30 spdls., 1949

Other Machinery For Sale

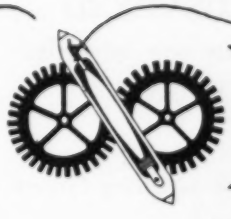
50—Crompton & Knowles C6 Looms, 25 Harness, 4 x 1 box, 1946
1—Abbott Quill Winder, 120 Spindles, pin loader, Age 1952
11—Werner Stainless Steel Dye Jiggs, 70" wide, Age 1953
1—Windsor & Jerauld Tenter Frame, 90' long x 60" wide
23—A&B Cotton Cards, 40", doffer, No. 110-120 Wire.
26—Lowell 40" Cards, 27" doffers, 12" coilers
1—Abington Card Stripping System w/Hoffman pump, 1947
1—Sipp-Eastwood Redraw Machines, Model GK, 120 spdls., Age 1954
1—Hermas 4 Blade Shear, Model AV, 75" wide, 1947
16—Atwood Uptwisters, Model #110, 208 spdls., 2 lb. Headless Package
1—Johnson 7 Drum Slasher, 62" headway, 1949
1—Cocker 7 Drum Slasher, 62" headway, 1948
12—Whitin Superdraft Roving Frames, Model G8, 8 x 4, 72 spdls., 1949
2—Edmos Circular Knitting Machines, Model EEM, 17"-24" dia.
2—Hinnekens Stainless Steel Dye Boxes, 12' wide, 1948
1—Greenville Stainless Steel Slack Rope Washer, 1948.
1—Stainless Steel Pneumatic Wringer, 1948.

General Equipment Available:

1—Studebaker ½ ton Pick-Up Truck, 1955
6—Electric Water Coolers
1—Westinghouse Breaker Station, 1200 amps., 600 volts
2—Tennant Floor Conditioning Machines
4—Ingersoll-Rand & Fulton Air Compressors, 100 & 125 HP
1—Economy Bale Press 61 x 32 x 65
1—United Miller, 2 HP motor
1—Stockbridge Shaper, 2' stroke, 3 HP motor
1—Hydraulic Motor Truck, battery charger
6—Transformers, 50 KV, 2200 volts
1—Reilly RO Boiler, age 1949, 60,000 lb. SPH
1—Cochran Deareating Heater, 150,000 lb. SPH, Age 1944
2—G. E. Steam Turbo Generators, 1000 KW 1—condensing; 1—non-condensing, 2300 volts

Real Estate for Sale or Lease:

Southbridge, Mass.—300,000 sq. ft., multi and single story modern brick buildings
New Bedford, Mass.—150,000 sq. ft., multi story brick building and single story warehouse
East Rochester, N. H.—140,000 sq. ft., built new 1949, modern manufacturing building, connecting ramps, spacious
Bridgeton, R. I.—43,000 sq. ft., three story and single story manufacturing space



Republic

TEXTILE EQUIPMENT COMPANY

40 Worth Street, New York 13, N. Y., U. S. A.

REFINANCING • APPRAISALS • PURCHASE & SALE
LIQUIDATIONS OF MILL PROPERTIES • PURCHASE AND SALE OF USED MACHINERY

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2—70" DYE JIGGS, TENSIONLESS AND AUTOMATIC.
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8—60" DYE JIGGS, ALL STAINLESS STEEL.
12—8'—20' DYE BECKS, OPEN AND ENCLOSED, ALL STAINLESS STEEL.
1—60" PALMER-QUETCH UNIT, LOW TYPE JACKETED PALMER, PNEUMATIC QUETCH, VARI DRIVE.
1—60' X 72" PIN TENTER, WITH HOUSING.
1—90' X 50" TENTER FRAME, 70' HOUSING, M. G. SET.
1—52½" FLAT FOLDER, 1 YD.—1½ YD. FOLDS, AIR LIFT.
8—24" X 18" DIAMETER RUBBER COVERED ROPE SQUEEZERS.
6—PRINT MACHINES, 2—10 COLOR, 45"—62" WIDTHS.
3—AGERS, 50"—70" WIDTHS, 18'—26' LENGTHS.

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AMERICAN

354—14 x 5 Ing. ER-1
360—14 x 8 Oliver
496—14 x 7 Worth. HB
823—18 x 7 Worth. HB
1292—22 x 9 Ing. ES-1 (NEW)
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Rebuilt Compressors

283 CFM 35 psi 10 x 7 Ing. ES-1
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410 CFM 20 psi 12 x 7 Gardner RX
634 CFM 60 psi 14 x 11 Ing. ES-1
659 CFM 20 psi 15 x 9 Ing. ES-1
729 CFM 50 psi 15 x 11 Ing. ES-1
940 CFM 30 psi 17 x 11 Ing. ES-1
1016 CFM 55 psi 17 x 13 CP-T
1410 CFM 35 psi 20 x 13 CP-T

LIKE NEW
1665 CFM 40 psi 175 HP—3-60-550 V
Ing. Rand XRE 16-16 x 12

American Air Compressor Corp.
Dell & Tex Streets — North Bergen, N. J.

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21 frames, 3½" gauge, 2-5/16" ring, 240 spindle, 1919.
3 frames, 3½" gauge, 2-5/16" ring, 192 spindle, 1917.
9 frames, 3¼" gauge, 1⅝" ring, 240 spindle, 1913, 220-440 volt motors.

MAY'S SPECIAL

1 Toledo Scale, Dormant Type, Style 31-1511-FD Platform 72" x 48", 1625 lb. Cap.

1—Foster #102 Winder—80 Spindle—7" Traverse for Wooden Tubes M. D.
1—Foster #102 Winder—100 Spindles—6" Traverse for Wooden Cones M. D.
1—Foster #102 Winder—50 Spindles Paper Cones 50 Spindles Paper Tubes
2—15 Tube Smith Drum Extractors Complete
1—440 Tube S.S. Butterworth Package Dyeing Machine M. D.
1—240 Tube S.S. Butterworth Package Dyeing Machine M. D.

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Intertex offers at private sale
the modern woolen and worsted
spinning and weaving machinery,
equipment and supplies of

BOTANY MILLS

Passaic, New Jersey

WOOLEN DIVISION

2—**48" Davis & Furber 6 Bar Mixing Pickers,** equipped with 54" Bramwell Automatic Feeders, Benoit Blending System, Toledo Scale and Weighing Box.

1—**48" Davis & Furber Fearnaught Picker,** Iron Cylinder, Oiling System, Bramwell Feeder, Stock Blower, Motor driven.

8—**Schimmel 60" x 48" 3 Cylinder Woolen Cards,** equipped with 60" Whitin Automatic Feeders, Model H. 1950, 60" Peraltas, Whitin Broad Band feeds, Whitin-120 end tape Condenser, Abington Card Strippers, Gear Head Motors.

13—**Whitin Model E Wool Ring Spinning Frames,** 120 spindles each, 6½" gauge, 5" rings, 10½" Traverse. Motor driven.

2—**40" Skene & Devallee 6 Bowl Wool Scouring Trains,** equipped with 48" Bramwell Automatic Feeders, Sargent 2 Cylinder Wool Openers, 6 Steel Bowls, 40" wide, S. S. Rakes, 29" face x 18" dia. squeeze rolls, Rotary Tumbler Dryer with fin type coils. Taylor controls.

3—**Riggs & Lombard 8 spindle Stainless Steel Wool Top Dye Kettles,** equipped with dye mixing tanks, temperature recorder and controls, Motor driven pumps.

6—**Riggs & Lombard 16 spindle Stainless Steel Wool Top Dye Kettles,** Dye Mixing tanks, expansion tanks, Temperature recorder and controls, Motor driven pumps.

1—**Riggs & Lombard 500 lb. Raw Stock Wool Dyeing Machine,** pressure type, equipped with dye mixing tank, expansion tank, pump and recorder. Motor driven.

1—**96" James Hunter 6 Section Raw Stock Dryer,** equipped with 12 individually motor driven fans, 2 sets squeeze rolls, delivery Conveyor with Blower.

WORSTED DIVISION

1—**Warner Swasey "Pacific" Converter,** Model #2800, 17½" wide apron, Static eliminator, electric stop motion, 15" face x 3" dia. front top roller, Motor driven, Serial #1126182.

4—**Davis & Furber 60" x 50" Double Cylinder Worsted Cards,** 60" Proctor & Schwartz Automatic Feeders, Balling Heads, Belt Driven.

4—**Platt Bros. 60" x 50" single Cylinder Worsted Cards,** 60" Proctor & Schwartz Automatic Feeders, Balling Heads, Motor Driven.

8—**Platt Bros. 60" x 50" Double Cylinder Worsted Cards** with 60" Proctor & Schwartz Automatic Feeders. Belt Driven.

27—**Societe Alsacienne Model P.L.B Worsted Combers.** Individually motor driven.

8—**Societe Alsacienne 4 Head Intersecting Gill Boxes Melangers,** (Mixers), equipped with 32 ball revolving Creel, 12 pins per inch fallers, Motor Driven.

5—**Schulmburger 8 Head Intersecting Gill Boxes.** 14 pins per inch fallers, S S oil emulsion trough, 48 ball revolving creel, Ball delivery, Motor Driven.

6—**Schulmburger 4 Head Intersecting Gill Boxes,** 16 pins per inch fallers, Ball Delivery, Motor Driven.

WORSTED DIVISION Cont.

8—**Whitin Woonsocket Model GB Super Draft Roving Frames,** 8 x 4, 126 spindles each, Motor Driven through Reeves Variable Speed Drive, 1948 model.

14—**Warner-Swasey Dual Pin Drafters,** Model M2350, equipped with 20 x 22 pins per inch fallers, 7 with 8 ball acumeter revolving creel, 7 with 16 can suspendor creel. Electric stop motions. 15" x 36" Can Delivery, Motor Driven.

8—**Warner-Swasey Quad Pin Drafters,** Model M2380, equipped with 20 x 22 pins per inch fallers, 16 can creel, electric stop motions, 15" x 36" can delivery, Motor Driven.

39—**Whitin Model F2, American System Worsted Ring Spinning Frames.** Equipped with long draft, 204 spindles each, 4" gauge, 33 frames have 2¼" dia. rings, 5 frames have 2¾" rings, 1 frame has 2½" dia. ring, 8" traverse, self-oiling rings, 2 step umbrella creels. Individually Motor driven through Reeves variable speed drive by 15 HP, 1750 RPM, 440 Volt, 3 phase, 60 cycle Motors. 1948 model.

2—**Whitin Model Worsted Ring Spinning Frames,** French System, 200 spindles each, 4½" gauge, 3" dia. vertical rings, 7½" traverse, 2 step Creels, individually Motor driven through Reeves Drive.

3—**Whitin Model F Novelty Ring Twisters,** 224 spindles each, 3¾" gauge, 2¾" rings, 8" Traverse, 4 step pin Creel, Motor driven.

5—**Fales & Jenks Fancy Twisters,** 240 spindles each, 3½" gauge, 2⅜" ring, 8" Traverse, 5 step Creel, Knee Brakes, Motor Driven.

8—**Fales & Jenks Trap Twisters,** 256 spindles each, 3½" gauge, 2¾" rings, 9" Traverse, 2 step Creels, Knee Brakes, Motor Driven.

6—**Hartmann Trap Twisters,** 410 spindles each, 3" gauge, 2" rings, 7½" Traverse, Double Cylinder Motor Driven.

4—**Atwood Model 10B Ring Twisters,** 100 spindles each, 7" gauge, 4½" dia. self-oiling rings, 8½" Traverse, 4 step cone Creel with individual Tensions, Motor Driven, 1949 Model.

3—**Foster Model 102 Cone Winders,** 120 spindles each. 6" Traverse disc tensions, slub catchers, 1 for paper cones 9° 36', 2 for Wooden Cones, 5° 36', Motor Driven Conveyors, Motor driven, Serial #1279K, 1280K, 1708K.

3—**H & W Steam Yarn Conditioners,** Type ST-3, Equipped with Bristol recorder & Temperature Control, Timer, Motor driven fan. Dimensions 79¾" wide x 53½" high x 78" deep. Stainless Steel Lined, 1950 Model.

2—**Saco-Lowell Hot Air Slashers,** 92" x 30" dia. Headway. Andrews & Goodrich 7 Pass Hot Air Dryer, 3 Copper size boxes with pneumatic loading. 2—12 Beam Ball Bearing Creel, size level Control, Temperature recorders and controls, Variable speed, Motor Driven, Machine Serial B190-B191.

WORSTED DIVISION Cont.

3—**66½" Saco-Lowell Model D Beam Warpers.** Equipped with 66¼" face x 15¼" dia. Drum. Bijur 1 shot lubricators, slotted Air Tube, 480 end Foster Magazine Cone Creel. Electric stop motions. Motor Drwen through Reeves Variable Speed Drive.

1—**Whitin Model K High Speed Solid Drum Dresser & Warper.** Equipped with Warp Compressor Co. Beamer, Entwistle hack stand, neck reed, Magazine Creel.

6—**Lines Whitin Schweiter Automatic Filling Winders,** Model M. S. 36 Spindles per line, 3 sections, 12 spindles per section. Motor Driven through Reeves Variable Speed Drive, 1944 & 1945 Model.

1—**86" Titan Portable Warp Tying-In Machine,** Type GK5, Consisting of 3 type GS-2 portable stands, 1 type GV2 stationary stand, portable truck, Motor Driven Head.

10—**Warner Swasey Sulzer Weaving Machines,** Model M2820, 80" Reed space, 8" Cam head motion, 4 bank electric stop motion, adjustable steel beams, 80" between head x 30" dia. 3 shift Veeder Root Pick Clocks, Individually motor driven by 3 HP 220/440/Volt 3 phase, 60 cycle, motor.

36—**C & K Model W-3 Automatic 4 x 1 Box Convertable Looms,** 82" Reed Space, 26 Harness Gem Heads, 6 Bank electric stop motions, Motor driven by ½ HP, 440 Volt, 3 phase, 60 cycle Motors.

42—**C & K Model W-2 Automatic 4 x 1 Convertable Looms,** 84" reed space, 20 Harness Gem Heads, with multipliers, 6 Bank electric stop motions, Motor driven 1½ HP, 1150 RPM, 440/volt, 3/60 cycle, Motor.

114—**C & K Model W-2 Automatic 4 x 1 Box Looms,** 84" Reed Space, 20 Harness Gem Heads with Multipliers, 6 Bank electric stop motions, Motor Driven by 1½ HP, 440/3/60 Motor.

1—**Consolidated Down Stroke Hydraulic Baling Press,** makes bale 48" wide x 24" deep x 60" high. Equipped with Gerotor Hydraulic pump. Motor Driven. All Steel Construction, Serial #319.

Approx. 3500
Roving Cans, 15" dia. x 36" deep.

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Laboratory Equipment	Carpenter Shop	Benches and Vises
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Pin Setting Shop Equipment and Supplies	Office Equipment	Conveyors
	Section Beams	Pumps
Electrical Equipment	Bobbins	Air Compressor
Machine Shop Equipment	Roving Cans	Scales

and hundreds of other items too numerous to mention.

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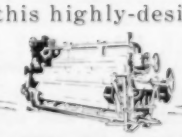

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CANADA'S MOST MODERN WORSTED YARN PLANT

1 Spinnbau "Perfect" Spg. Fr., 320 Spdles, 2½" dia. rings. Pneumafil, 550/60/3. New 1955.
1 S-L 72 Sp. LD Model F-4 Rover, as new, 550/60/3.
8 Whitin 200 Sp. 4" dia. Model BJ Twisters, Alum. Bobbins, Ind. Stop Motions, 1948, 550/60/3.
10 Whitin 200 Sp. Spinning Frames, Model BW 3" dia. rings, 1947/8, 550/60/3.
6 PSS Spg. Frames, "Magnum" 200 Sp. 2½" ring. dia. New 1948, 550/60/3.
1 Holdsworth Gill Reducer, 12 ball creel, 550/60/3.
1 W-S Pin Drafter, 2 can Del. Can Creel, 550/60/3.
1 W-S Pin Drafter, 4 can Del. Can Creel, 550/60/3.
1 Armstrong Cot Buffing Machine, 550/60/3.
1 H&W Yarn Conditioner.
2 Universal Roto-Coners, 1950, 100 Sp. 3°30' Cones, 550/60/3.
1 Freas. El. Oven, S/S.
1 Beckman Ph Meter.
1 S-L Eveness Tester.

And many other highly desirable items for the Worsted Yarn Industry.

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GEORGE W. EGAN LIQUIDATOR
"The Machinery Man Known Everywhere"
PER ORDER: Petit Textiles, Ltd., 159 Cousins St., St. Johns, P.Q.

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3—V.V. 60" S.S. Tensionless Jiggs 60" & 72" S.S. Werner Jiggs
2—50" S.S. Totally Enclosed Jiggs
1—Detwister Unit, with suction, L-6 Nash Pump, Mt. Hope Guides, draw rolls, etc.
3-Roll Hydraulic Calendars, 60", 65", 68"
1—67" Werner Pneuumatic Padder, 12 ton
Beamers, 66" & 54"
1—8' and 1—14' S.S. Dye Becks
1—8 Fan National Loop Dryer
1—Butterworth 5-roll Calender, 120", 2 steel rolls, 3 Composition rolls, Mycock Expander, Foxwell Guiders, Overhead Swing Folder.
1—Venango 150 lb. S.S. Paddle Dye Machine, Totally Enclosed.
1—L-4 Nash Pump & Motor
1—50" Werner S.S. Jigg
1—Merrow Sewing Machine, Table & Motor
1—100", 2 rubber roll Hydraulic Padder

A & M BLANK CO., INC.
301-313 East 22nd St. (at 7th Ave.) Paterson, N.J.
SHerwood 2-1367-8

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MARCO FLOW-MASTER EQUIPMENT
Flow-Master AC 500 Homogenizer
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Flow-Master KACR Reactor
Flow-Master Roto Feed Mixers
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Model L-S

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144 spindles—6" gauge—4½" ring.

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Machinery in like-new condition. Complete with viscometers, stainless steel piping, sizing tubes and trucks.

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1 lb. capacity.
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1—P&W INSPECTION & ROLLING Machine, 66", motor drive.
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4—D&F Single Acting NAPPERS, 14 Roll, 72", 80" M.D.
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6—D&F 60x60 Cylinders with bearings.
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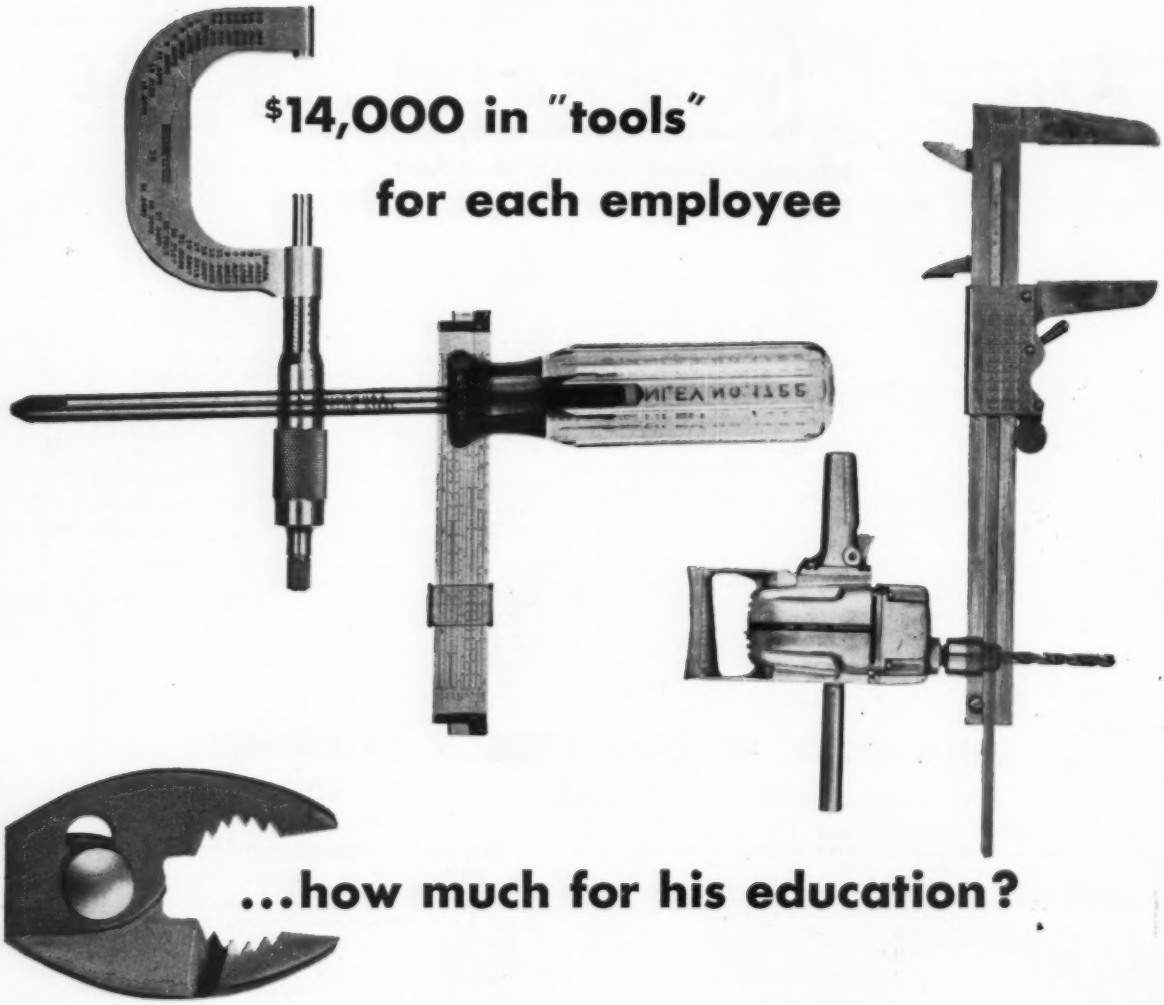

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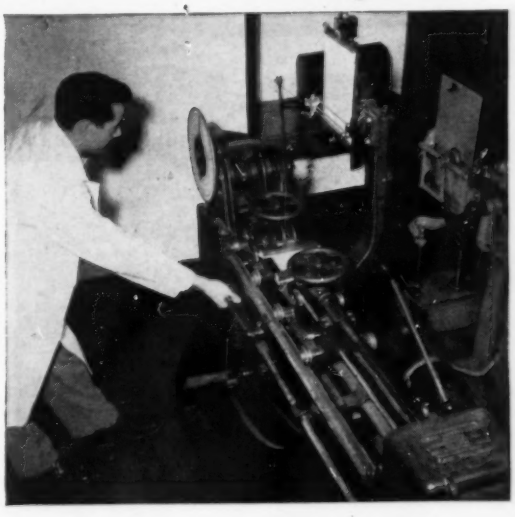

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MODEL A-VT-A

A pneumatic tool especially designed for the specific purpose of REMOVING LINT and FLY from the top rolls of Spinning Frames and Roving Frames. Saves time and does a better job by substituting mechanical cleaning instead of laborious hand methods. Air deflector prevents fly and lint being blown into yarn when spinning. Adjustable valve permits any desired spindle speed.

KEEP YOUR AIR LINES FREE of
WATER·DIRT and SLUDGE
•
KEEP AIR DRY AT ALL TIMES
USE THIS AMAZING COMBINATION
AND GUARD YOUR PNEUMATIC SYSTEM
•

M-B AUTOMATIC WHIRL-A-WAY AIR LINE FILTER
MODEL W-1

RIBBON TYPE FILTERING UNIT removes solids .00039 and larger. Transparent plastic bowl makes filtered foreign matter visible. Gives maximum protection to all types of Lint Blowers, Blow-off Hoses and various air-operated controls.

M-B AUTOMATIC AIR TRAP

Ejects water automatically. Operates upon accumulation of 3 to 4 ounces. Discharges in less than 5 seconds. Assures dry air in pneumatic system at all times. Non-corrosive throughout. Weighs less than 5 pounds.

WRITE FOR LITERATURE

M-B PRODUCTS
46 VICTOR AVE., Div. 16
DETROIT 3, MICHIGAN

Carrier Corp.	136	A
Carter, Inc., A. B.	214	T
Century Electric Co.	56	F
Ciba Co.	36-37	C
Cleaver-Brooks Co. Boiler Div.	149	Q
Clipper Belt Lacer Co.	186	Q
Coats & Clark, Inc. Traveller Div.	199	T
Cocker Machine & Foundry Co.	34	R
Cole Mfg. Co., R. D.	206	B E
Collins Bros. Machine Co.	196	T
Columbia-Southern Chem. Corp.	157	C
Continental Can Co., Shellmar-Betnar Flexible Pkg'g. Div.	35	P
Continental-Diamond Fibre Div., The Budd Co., Inc.	179	OPQR
Copper Printing Rolls Corp.	208	E
Corn Products Refining Co.	218	C
Corning Glass Works	229	H
Crompton & Knowles Loom Works	13	R
Crompton-Richmond Co., Inc.	232	N
Crucible Steel Co.	30	O
Curtiss-Wright Corp. Marquette Metal Prods. Div.	82	T
Cutler-Hammer, Inc.	67	F
Darnell Corp., Ltd.	228	P
Dary Ring Traveler Co.	216	T
Dayton Rubber Co., The Textile Div.	44-45	RT
Dinsmore Mfg. Co.	240	E
Dobeckmun Co.	26	G
Dodenhoff Co., W. D.	210	P
Dodge Mfg. Corp.	66	Q
Dolge Co., C. B.	224	B
Dommerich & Co., Inc., L. F.	18	N
Dow Chemical Co.	209	C
Draper Corporation	1, 147	R
duPont de Nemours & Co., E. I. Dyes & Chem. Div.	33	C
Electrochemical Dept.	249	C
Grasselli Chem. Dept.	81	C
Engineered Plastics, Inc.	242	T
Fairbanks Co., The	182	H
Fidelity Mach. Co., Inc.	53	L T
Fiske Bros. Refining Co. Lubriplate Div.	220	M
Forest Products Div. Olin Mathieson Chem. Corp.	71	P
Foster Machine Co.	145	T
Foxboro Co., The	76	K
Gates Rubber Co.	171	Q
General Chemical Div., Allied Chem. & Dye Corp.	195	C
General Electric Co.	78-79	F Q
Lamp Div.	230	F
Gessner Co., David	199	E
Goodrich Chemical Co., B. F.	28	C
Goodyear Tire & Rubber Co., Inc.	25	C
Gubelin International Corp.	184	T
Guider Specialty Co.	224	E
Gulf Oil Corp.	12	M
Harwood & Son, Geo. S.	208	T
Haskell-Dawes Mach. Co., Inc.	200	T
Hayssen Mfg. Co.	6	P
Hinde & Dauch	57	P
Hooker Electrochemical Co.	243	C
Howard Bros.	52	T
Hubinger Co.	189	C
Hungerford & Terry, Inc.	246	B
Hunt Mach. Co., Rodney	51	E
Huyck & Sons, F. C. Noone Industrial Fabrics Div.	236	E
Hyatt Bearings Div., General Motors Corp.	161	O Q
Ideal Machine Shops, Inc.	219	T
Industrial Rayon Corp.	74-75, 151	G
Industrie-Werke-Karlsruhe	264	E
Ives Co., Inc., L. T.	191	L

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Johnson Corp., The ..... 236 ..... H
Johnson Bronze Co. ..... 240 ..... O Q
Jones Box Corp., Jesse ..... 226 ..... N

Keever Starch Co. ..... 197 C
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Lewis Co., G. B. ..... 190 ..... P
Link-Belt Co. ..... 7 ..... Q
Lockwood Greene Engineers, Inc. ..... 70 ..... N
Loper Co., Ralph E. ..... 246 ..... N
Lubriplate Div., Fiske Bros. Refining Co. ..... 220 ..... N
Ludell Mfg. Co. ..... 40 ..... E
Lunkenheimer Co., The ..... 77 ..... H

Main & Sons, Inc., Robt A. ..... 248 ..... T
Manhattan Rubber Div. ..... 48 ..... Q
Maple Flooring Manufacturers Assoc. ..... 10 ..... B
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Marquette Metal Prods. Div. ..... 82 ..... T
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Miller Fluid Power Co. ..... 83 ..... E H O
Minneapolis-Honeywell Reg. Co.
Industrial Div. ..... 68-69 ..... K
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Monsanto Chemical Co., Plastic Div. ..... 217 C
Mount Hope Machinery Co. ..... 63 ..... E

National Aniline Div., Allied Chem. & Dye Corp. ..... 17 C
Naugatuck Chemical Div., U. S. Rubber Co. ..... 183 C
New England Bobbin & Shuttle Co. ..... 244 ..... R
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Ordnance Gauge Co. ..... 198 L

Perfecting Service Co. ..... 194 ..... H
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Powell Valves ..... 86 ..... H
Proctor & Schwartz Inc. ..... 223 ..... E

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Rumford Chem. Works ..... 233 C
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Schweiter Co., Ltd.	46	T
Scott Testers, Inc.	261	K
Shore Instrument & Mfg. Co., Inc.	248	K
Sirrine Co., J. E.	Third Cover	N
SKF Industries, Inc.	50	O...Q
Solvay Process Div., Allied Chem. & Dye Corp.	185	C
Sonoco Prods Co.	41	T
Southern Shuttles Div., Steel Heddle Mfg. Co.	187	R
Spaulding Fibre Co., Inc.	19	P...T
Square D Co.	181	F
Staley Mfg. Co., A. E.	140	C
Stanley Works, The	205	K
Steel Heddle Mfg. Co.	187	R
Stowe-Woodward, Inc.	11	E
Supreme Knitting Mach. Co., Inc.	235	L
Taylor Co., Halsey W.	196	N
Taylor Fibre Co.	72	O
Taylor Instrument Cos.	42	K
Taylor, Stiles & Co.	202	T
Terrell Mach. Co., The	49	D
Texas Co., The	Fourth Cover	M
Textile Machine Works	88	L
Textile Recorder Machry. & Accessories Exhibitions Ltd.	204	N
Tompkins Bros. Co.	206	L
Torrington Co., The	241	L
Turbo Machine Co.	5	L
U. S. Rubber Co. Mechanical Goods Div.	62	Q
Naugatuck Chem. Div.	183	C
U. S. Steel Co.	227	O
Universal Winding Co.	24, 154	T
Uster Corp.	153	R
Utica Novelty & Mill Specialty Co.	238	E...L
Van Vlaanderen Mach. Co.	47	E
Veeder-Root, Inc.	73	K
Victor Ring Traveler Co.	222	T
Warner & Swasey Co.	29	T
Westinghouse Electric Corp. Lamp Div.	212-213	F
Whitin Machine Works	43	T
Wildman Mfg. Co.	225	L
Wood's Sons Co., The	188	Q

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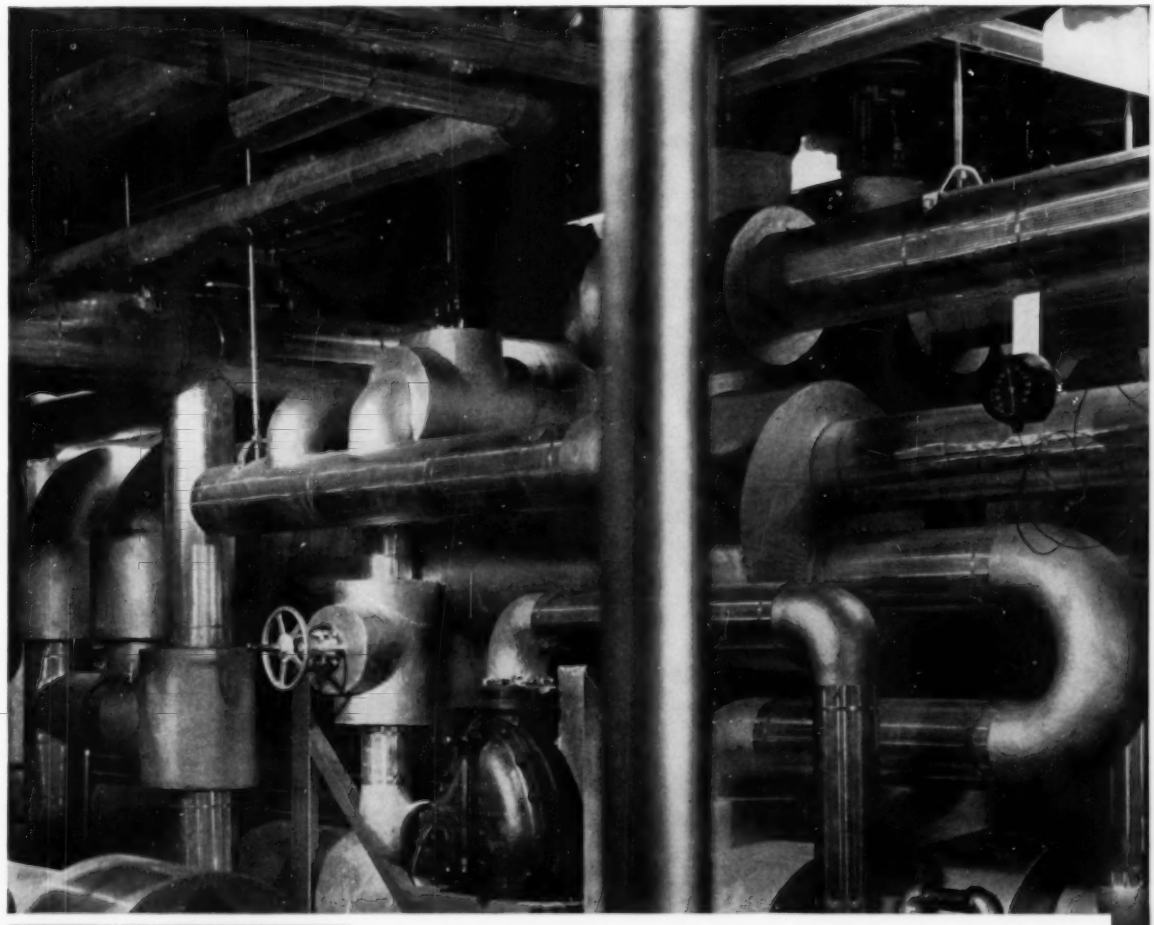

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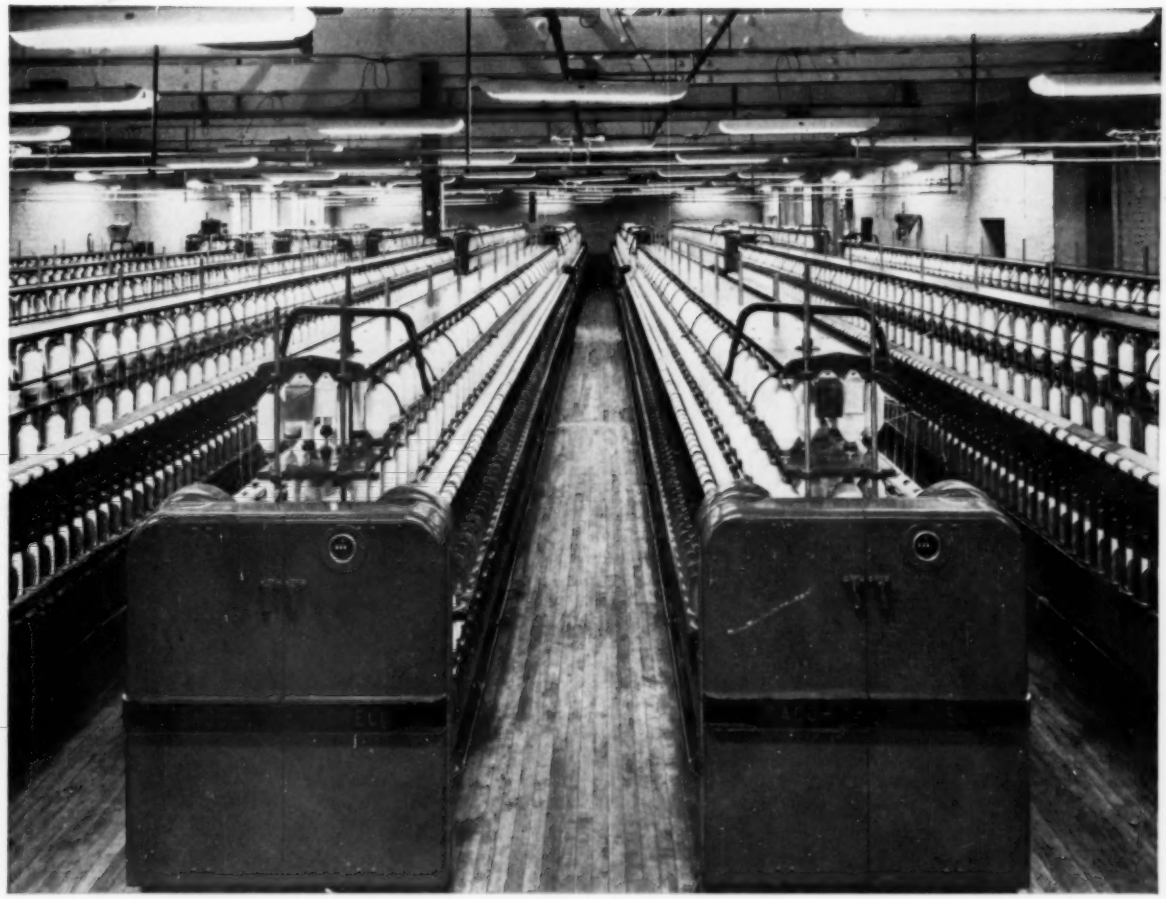

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